THE RUBBER AGE

ESTABLISHED 1917

COVERS ALL PHASES OF THE PRODUCTION AND MARKETING OF CRUDE RUBBER AND THE MANUFACTURE AND DISTRIBUTION OF RUBBER GOODS

Vol. 37 MAY, 1935 No. 2

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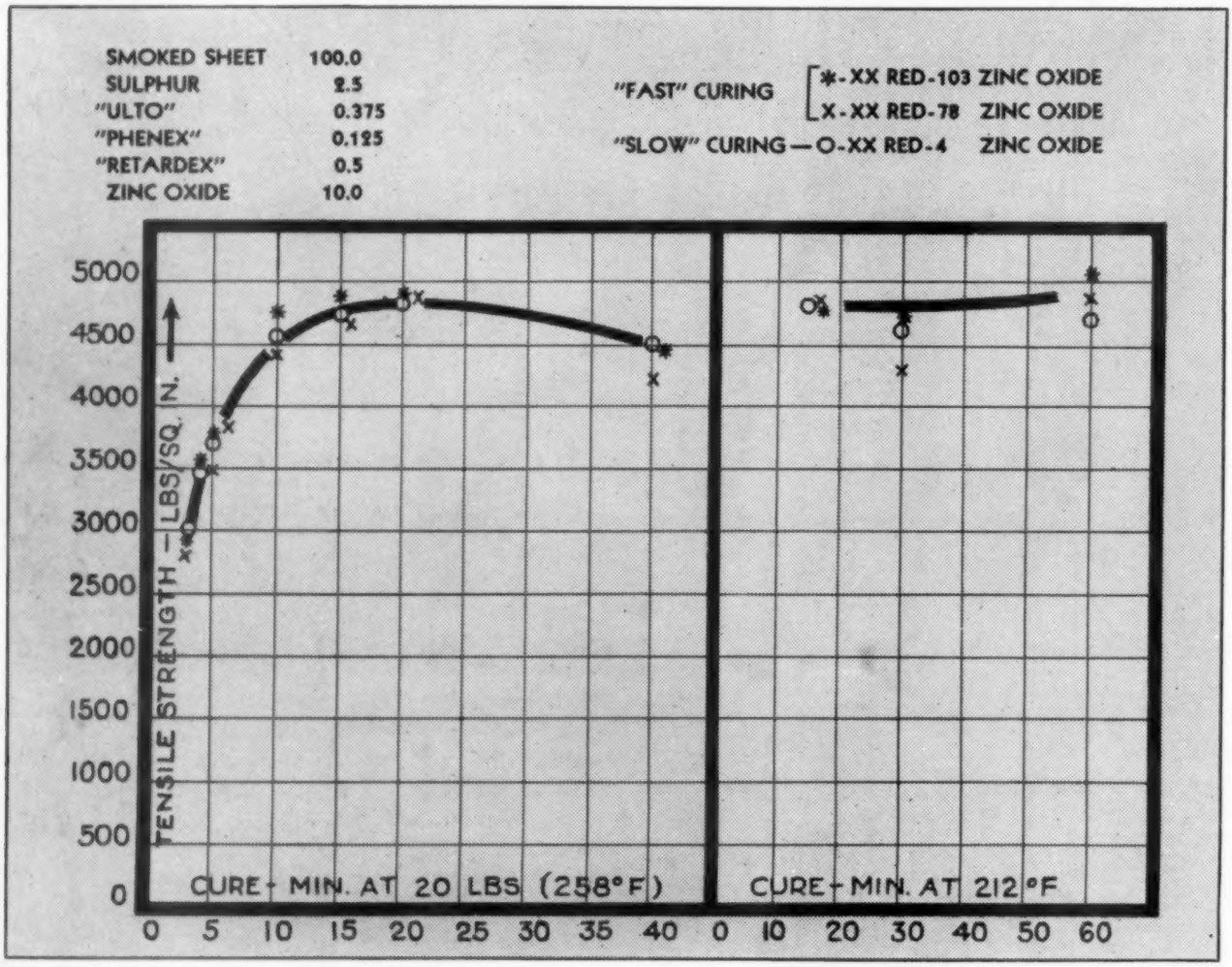
No. 38 of a series of charts showing a comparison of "FAST" and "SLOW" curing zinc oxides with typical accelerators.



When "Retardex" is added to a 10% Zinc Oxide compound accelerated with "Ulto"-"Phenex", the differences in curing rate shown by different types of Zinc Oxide, become practically negligible.

NOTE: **This is not the case when "Retardex" is omitted. See chart No. 33.**

New Jersey Zinc

The New Jersey Zinc Company 160 Front St. New York

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Architectural Uses of Rubber

Variability and Properties of Rubber Prove Valuable in Construction Work

By Frank Orellana

THE architect of the 19th century had at his disposal only the primary structural materials, such as brick, cast iron, stone and timber. His creational work was, as a rule, limited to the main structure of the building, shop, or home. Not until the entrance of steel and concrete into the building industry did the possibilities of structural work, in the full sense of the word, fit into the architect's scheme. Quickly he adapted himself to using the new materials. The architect of today is more than a mere designer—he has come to be recognized as the authority on furniture and fixtures, down to minute detail. Small wonder, then, that a recent investigation reveals that rubber has found a definite spot in the realm of architecture, and has been, and is being, adapted to many new uses. Here we review some of these uses.

Rubber has become part of the architect's scheme more because of the variable nature and properties of the product than for any other reason. Steel is steel. But rubber may be soft, or hard (ebonite), or medium. Its elasticity serves a useful purpose at one point; its transformation into a state of rigidity makes it again a valuable agent at another point. An example of this is found in a prosaic application of rubber, that for flooring purposes. Types of flooring now range from sponge-backed material, where softness and quietness is desired, to concrete-filled unit blocks for use where resistance to service is the major factor, such as in public buildings, corridors, etc.

Hand painted rubber mural by Miss Helen Treadwell, a New York artist specializing in painting on unusual materials.

Rubber research in the past decade has practically forced the product into growing use. In 1920, or thereabouts, rubber flooring was limited to a few simple colors, red, blue, green. The science of rubber technologists has made available not only a widely diversified range of colors, but a still wider selection of patterns, ranging from the simple to the dazzling.

Leaving flooring for the moment, let us regard one of the most recent applications of rubber in architecture—wall panelling and decoration. In several instances wall panelling has been adopted in this country, but its use is more apparent abroad, particularly in England. Broadcast House, in London, the headquarters of the internationally-known British Broadcasting Company, operated by the Government, has some of its walls lined with rubber panelling. This panelling, supplied by the British rubber firm of Messrs. William Warne & Company, was especially produced to tone in with the fabric of the internal

decorations. The panelling is laid in both solid and perforated style. Tops and wall strips, in this building, some fancy in design, others plain, are also a feature in the use of rubber in Broadcast House.

Wall panels are generally constructed of ebonite (hard rubber or vulcanite). By appropriate pigmenting the ebonite can be given almost any shade or coloring desired. If a large proportion of a white pigment, such as lithopone or titanium white, is incorporated in the rubber, bright colors may be obtained. Rubber wall panelling is being adopted, for one reason, because the coloring possible adds beauty and attractiveness to building appearance.

Soft vulcanized rubber sheeting, of a nature similar to floor covering, has also been adapted for wall panelling. It is of an approximate 3/32nd of an inch in thickness. An advantage found with this thin rubber panelling is that it is easily washable, washing down as simply as tile, but without leaving the cold feel of tile. Rubberized paper is also being used as wall paper. This rubberized paper consists of cotton wool, uniformly impregnated with rubber by soaking the wool in latex and then allowing it to dry. This "wallpaper" has the extreme advantage of being washable, like the rubber wall panelling. It prevents unsightly stains and discolorations to which all wall coverings in public places are subjected because of this washable feature, yet it resists damage due to water penetration.

For years architects have sought for a satisfactory metal sheet for use on small industrial plants and factories, particularly where the roof is subjected to service in acid-laden atmospheres. Chemical factories, and plants making use of raw materials, especially, require a roof of this nature. Rubber bonded to metal has proved successful in this requirement. Rubber-covered steel in the form of sheets, tiles, gutters, ventilators, etc., was made available in the last few years and was quickly taken into consideration by industrial architects.

Rubber-covered metal, in any form, requires no painting, and since corrosion is not involved, requires no subsequent maintenance cost after initial installation, the dread of all building contractors. The heat conducting properties of rubber-protected steel have also been found to hold an advantage over many another type of roof covering. One such test revealed the following table:

Material	Thermal Conductivity
¼" rough cast glass	1.04
Corrugated asbestos	1.00
Slates	1.10
Roofing tiles	.992
Galvanized iron	2.17
1" boards and felt	.54
5" concrete	.30
Plain black "L.P.S."	.90
Ditto on 1" boards	.45
Abrasive-proof "L.P.S."	.75

Recent tests have strongly indicated that in addition to its protective qualities rubber-covered steel for roofs also acts as an insulator. The loss of heat in this material, at a thickness of 1-inch, has been found to be about one-fifth of galvanized iron. As the chart shows, it is less than one-half that of corrugating asbestos or slates. Investigations recently concluded illustrate the value of rubber-covered steel as a sound deadening material. The velocity of sound of vulcanized rubber is of the order of 177 feet per second, as against 1,640 feet per second of cork.* Cork, as is well known, is used almost exclusively for sound insulating and deadening purposes.

It was inevitable that the introduction of talking motion pictures, accompanied by its almost unreasoning demands for acoustics and sound absorption, should lead to an almost instantaneously rush toward rubber, primarily for flooring, because of the latter requisite, but also for staircases, carpeting, upholstery, and wall panelling. It has been definitely determined that the acoustic properties of rubber in no way detract from its adaptability for use in picture houses. Architects have worked closely with sound engineers in this regard.

Generally, it has been determined that in connection with the modern type of motion picture cathedral the brightest colors possible are more suitable, simply on account of the fact that color attracts. Sinking color contrasts, too, heighten the effect on the movie-goer. Carpets are too readily worn down and lose their brightness. Color variation in marble, stone or terrazzo is not sufficiently available. Only rubber flooring lends itself to a glorious conglomeration of color, and yet maintains a definite pattern. As a rule the thickness of rubber flooring in picture houses is never less than 3/16" of an inch, with the color being solid, rather than merely a surfaced pigment. The latest development for flooring in this respect is the use of 3/16" sponge rubber, with a regular rubber surface. This lends a softer "touch" to the flooring, and has been adopted in several of the larger picture cathedrals in this country and abroad.

Where exposure to varying weather conditions is to be considered it has been found advisable to make use of a composition of rubber and cement. This is laid in a semi-prepared state and patterns of terrazzo impression are made by pressing material into the surface prior to the setting of the material. In this manner a rubber surface is formed that is impervious to dampness and moisture, and yet has excellent wearing qualities.

When architects were approached many years ago with rubber as a material for upholstery, it was practically always rejected on the grounds of its "odor." Only in recent years have rubber executives convinced the architects that science has removed all traces of "smell" from the rubber. Since such conviction rubber has been adopted as a seating material, particularly in the picture houses where again sound-deadening must be considered. For some types of seating rubberized hair is being used, the hair being dipped in a rubber solution which preserves the shape of the seat under all kinds of pressure.

In the past year or two a new material has rapidly forged to the front as a material for upholstery purposes.

Rubber flooring in the Rotonde Cinema, Pathe Marignan, Paris, of Leyland and Birmingham Rubber Company (England) manufacture.

* Tests conducted by the Mellon Institute, Pittsburgh, Pa.

This is Dunlopillo, a product of the Dunlop Rubber Company. Consisting of sponge rubber it is most put to use in theatres as an arm rest. It is a "solidified rubber froth" molded into surfaces, and provides the most luxurious seating material other than the finest type of down. It has the advantage over down, hair, flock, etc., in that it is highly hygienic, the air circulating through numberless interstices in the material.

Turning to other uses of rubber in modern architecture we find an increasing tendency, especially in homes, for structures such as window seats and built-in ingle nooks. As a general rule these are more attractive than comfortable. To make these aesthetic-appearing corners afford physical satisfaction architects are now making use of suitable rubber cushioning, either as shaped loose cushions, or rubber incorporated as part of the structure.

Rubber skirtings are being rapidly adopted. They have a great advantage over all other types now in use since they fit more closely to the floor or wall, do not shrink, nor permit accumulation of dust and dirt behind them. Fillets of molded rubber used for rounding off corners or angles, thus preventing the accumulation of dirt usually difficult to remove by brooms, brushes, or mechanical appliances, are also finding favor in the modern scheme of things. Rubber buffers in the frame-work of

Dunlop Rubber flooring in Fischer's Restaurant, London, which matches the interior. Raymond McGrath, architect.

collapsing or lifting gates, in private residences, eliminating the jarring noise which always accompanies closing of them, is being used. Buffers or rubber strips affixed to door jambs in multiple office skyscrapers are being widely adopted.

In the bathroom rubber is being put to use in a number of ways. Rubber panelling for walls is proving particularly popular in the higher-priced residences since it remains unaffected by steam, and is clean and splash-proof. Flooring of rubber is also spreading in use in this type of residence, finding favor because of its sanitation and possible artistic effects. Toilet seats of rubber are putting in appearance. They cannot be scratched, are germ-proof and are quiet.

Rubber is being used to line sinks in the kitchen. Rubber lining here prevents damage to crockery and pots and pans. Kitchens lined with rubber, adopted by some of the better type restaurants and hotels, are noted. The rubber panelling withstands the influence of grease, steam, water-splash, etc. Where kitchen cleanliness is a necessity, as which kitchen does not, the rubber panelling will be quickly adopted on account of the simplicity of cleaning it with mere soap and water.

Staircases are receiving their due share of attention in the growing use of rubber in architecture. Treads, risers

Looking downward at the staircase in the Midland Hotel, Morecambe, England, covered with Dunlop Rubber blue flooring.

and nosings are also made of rubber, although not particularly new uses. Nosings are of distinctive coloring, leaving no uncertainty as to where they begin and terminate. For the corners of stair treads molded rubber covers have been found most effective. An example of this is found in the Worcester (Mass.) Memorial Auditorium, where every staircase is equipped with non-slip rubber treads.

Handrails of staircases are also making use of rubber. The rubber covering employed in this regard can be molded to any required shape, and colored to represent the fancy woods, such as mahogany. The day of the winding staircase is over in this country, according to leading architects, the trend being toward economizing room and reducing area.

Rubber is also being put to use as a draught excluder in connection with windows and ventilators. Doors are being equipped with rubber tips at top and bottom, rather than the utilization of rubber door stoppers, to prevent damage to both door and plaster walls. Architects are even toying with the plan to use rubber as a shock absorber in connection with building foundations. They argue that since buildings may be protected against vibration by laying rubber blocks on the surrounding by-ways, then there should be a more decided value to vibration proofness by incorporating the rubber somewhere in the foundation itself.

Drifting away a bit from the architectural angle, mention should be made here of a new process which allows interior decorators to change the color scheme of a room. This new process allows walls to be sprayed with latex, colored to a desired shade. A powder may be distributed with the latex by means of a double-acting spray, the combination giving the appearance of flock paper. Upon drying, this body is sanitary and washable. It is possible to "paint" decorative designs on walls and ceilings in this manner, although its use has not yet spread to any pointed degree.

There are many angles to consider before architects turn to rubber as a flooring, panelling, decorative or other useful purpose in construction activity. Cost is still very much a decided factor. Rubber flooring ranges from 30c to $8.00 per square yard. Its cost is easily twice that of good wooden blocks or pressed cork. Its uses as wall panelling is several times that of ordinary plaster materials.

Comparison of Rubber Profits

Increased Material Costs and Higher Wage Scales Hold Down Net Profits Though Manufacturers Report Increased Sales

TWO pertinent points are made clear in a discussion of the financial reports recently issued by the leading rubber manufacturers, i.e., that despite increased sales in almost every instance the margin of profit was lower due to increased cost of raw material and higher wage scales, and second, only a stabilized price on tires will enable the manufacturers to return to the point where dividends will again be assured stockholders.

For purposes of comparison we have selected seven of the larger manufacturers: Goodyear, U. S. Rubber, Goodrich, Firestone, General, Fisk and Seiberling, these being listed in the order of their sales totals for the year of 1934, with the exception of Firestone and Seiberling which end their fiscal year on October 31, and General which ends it on November 30.

Every one of these seven manufacturers reported increased sales in 1934 over the preceding fiscal year. Percentages of increase follow: Goodyear, 25%; U. S. Rubber, 19%; Goodrich, 31%; Firestone, 31%; Seiberling, 19%. General and Fisk reported increased sales amounting to $3,683,160 (gross sales) and $1,049,288 (net sales), respectively.

The combined net sales of all seven of these companies amounted to $455,848,939. Three of these concerns—Goodyear, U. S. Rubber and Goodrich—reported net sales in excess of one hundred million dollars. The combined net sales of these three leaders amounted to $346,149,353, or approximately 76% of the total sales made by all seven companies.

Price Wars Hinder Profits

In the usual statements accompanying the various financial reports it was made very definite and clear to stockholders that the responsibility for lowered profits in some cases, and the lack of higher profits in others, was due to the ravenous price wars which occurred during the twelve months of 1934. These price wars, plus increased cost of raw materials and higher Federal and local taxes, played havoc with profits. Despite increased net sales ranging from 19 to 31% many manufacturers showed reduced profits.

For instance, Goodyear reported increased sales of 25%, yet profit for 1934 amounted to $4,553,964 as compared with $6,021,535 in 1933. U. S. Rubber's net sales for 1934 were reported as being 19% higher than 1933, but the company charged off $543,608 to surplus as a deficit, compared to a $76,913 profit in the preceding year. In the year 1932 this company reported a net loss of more than ten million dollars. Fisk's net sales increased by more than $1,000,000 with profits set at $728,696, as compared with profit of $1,279,765 for the period from May 20, 1933, to December 31, 1933.

Of the seven manufacturers under discussion only three reported actual increased profits, viz.: Goodrich, Firestone and General. Goodrich reported 1934 net profit at $2,534,679, an increase of $262,165; Firestone's profit was $4,154,655, an increase of $1,757,596; General's profit was shown as $679,198, an increase of $264,286.

Taxes Took Heavy Toll

Provision for Federal income and other taxes took a heavy toll from the profit possibilities in many cases. Goodyear charged off $13,309,505 for such taxes. U. S. Rubber reserved $292,309 for Federal and foreign taxes, of which $214,912 was for Federal purposes total tax provision being $7,670,000. Goodrich set aside $457,000 for Federal income tax. Firestone reported total taxes for its fiscal year as being $7,500,000. General provided a reserve of only $4,000 for Federal income taxes. Fisk provided $84,615 for the same taxes.

Harvey S. Firestone, Sr., chairman of the Firestone board, points out in a statement to stockholders that during the company's fiscal year it paid an excise tax of 2¼c per pound on tires, and 4c per pound on tubes, plus a cotton processing tax of 4.2c per pound, all these extra taxes amounting to $5,200,000. Listing six different types of taxes paid by Fisk Rubber, E. D. Levy, president, informs stockholders that these various assessed taxes (which amounted to $1,461,848 in all) accounted for approximately 14c of every dollar of net sales—twice the net profit of 7c on every dollar of sales reported by the company.

Financial shorts: In a separate item accompanying the U. S. Rubber report the U. S. Rubber Plantations, Inc., had a profit of $3,378,682, before provision for depreciation and amortization of $1,642,840, which resulted in a credit to surplus of $1,735,842 for the year. Goodrich's ratio of current assets to current liabilities is reported as 6.12 to 1.

COMPARISON OF FINANCIAL REPORTS OF LEADING RUBBER MANUFACTURERS

(For the year ending December 31, 1934)

	Net Sales	*Operating Expenses*	*Depreciation*	*Operating Profit*	*Other Income*	*Profit before other charges*	*Other Charges*	*1934 Net Income*	*1933 Net Income*	*1932 Net Income*
Goodyear	$136,800,764	$122,155,950	$8,252,400	$6,392,413	$1,621,880	$8,014,293	$3,726,609	$4,553,964*	$6,021,535	$850,394¶
U. S. Rubber	105,476,872	94,990,957	5,966,400	4,519,512	.....	595,335**	1,138,943	543,608¶	76,913	10,358,374¶
Goodrich	103,871,717	95,921,301	3,945,802	4,004,614	1,591,658	5,596,272	3,061,593¶¶	2,534,679	2,272,514	6,582,140¶
Firestone†	99,130,243	87,090,174	5,804,294	6,235,773	484,555	6,720,329	2,565,673	4,154,655	2,397,059	5,151,927
General‡	14,489,371	13,601,865	252,367	635,139	167,661	802,800	123,602	679,198	414,912	202,253
Fisk Tire	10,228,760††	9,075,731	396,055	756,974	56,337	813,311	°' 615§	728,696§§	1,279,765‡	136,363‡‡¶
Seiberling†	6,851,212x	.....	.....	70,805xx	.....	.....	617,494xxx	546,688¶	334,116¶	.....

* Includes $266,279 profit on the book values of foreign net current assets. ** After deduction of $3,631,869 interest on funded indebtedness and $292,309 provision for Federal and foreign income taxes. ¶ Deficit charged to surplus. ¶¶ Includes $51,481 net profit applicable to subsidiary companies' capital stock not owned by Goodrich. † Fiscal year ends October 31. ‡ Fiscal year ends November 30. †† Gross sales, less returns and allowances. § Provision for Federal income tax. §§ In a separate statement labeled "export accounts in liquidation" Fisk transferred a net loss of $44,806 to reserve. x Gross sales. xx Operating profit before depreciation, interest and other charges. xxx Includes charges for depreciation, interest and deductions in book values of investments in subsidiary and associated companies. ‡ For the period from May 20, 1933, to December 31, 1933. ‡‡ Receiver's report on the predecessor Fisk Rubber Company.

Progress in Rubber Industry

Semi-Annual Report by Dun & Bradstreet Indicates Continued Improvement in All Branches of Industry

DESPITE some retarding factors, the trend of conditions in the rubber goods industry continues upward. Producers and retailers appear confident that improvement will become more strongly evident in all branches during the current year, as widening industrial activity will increase the demand for mechanical goods, while larger general purchasing power will stimulate the sales of specialties, and the rising production of automobiles will intensify the needs in that field.

During the past twelve months, the rubber goods industry, as a whole, has been making rapid progress toward recovery, and the outlook is the most favorable it has been in years. Consumption of crude rubber in the United States in 1934 exceeded all totals back to 1929, and trade estimates place 1935 consumption at 500,000 long tons, which will establish an all-time high. As a result of the new uses being found constantly, output of rubber products and sundries may top all levels of the last few years, while production in the tire industry has been set tentatively at 52,500,000 casings, as compared with 47,233,000 in 1934, but this figure may be surpassed if the present rate of gain in the automobile industry be extended.

Sales of tires by manufacturers to automobile makers, following closely the rise in the output of motor cars, went 30 to 40 per cent above the total for the first quarter of 1934. Sales of mechanical rubber goods, rubber specialties, and rubber belting were larger by 20 to 25 per cent than during the first three months of last year, with the trend definitely upward.

Price Decline Halted

The price situation has become confused in the tire division, after holding steady since the increase last November, which brought a halt to a decline which had persisted for nearly six years. This price upheaval comes at a crucial time when makers were just about to receive the first major benefits from the rise last Fall, and will result in curtailed profits, especially if it leads to a protracted price war among manufacturers, according to a survey of the rubber goods industry, which has just been completed by Dun & Bradstreet, Inc.

Factory operations in the tire division have shown a further improvement this year to date, as a result of the sharp rise in demand for original equipment from automobile manufacturers. Labor difficulties in some of the smaller plants have had an adverse effect on sales and earnings, but operations, on the whole, have shown a distinct improvement over last year's. Manufacturers of mechanical rubber goods and rubber specialties both have been active, while the large tire companies have had the best volume since 1931. Although the active rubber-manufacturing season usually runs from January to May, output was increased so widely during December and January, in order to provide against labor difficulties expected in the Spring, that operations started to slacken around the middle of March, because of the mounting inventories.

In contrast to 45,305,000 in 1933, production of automobile tires in 1934 reached 47,233,000 Encouraged by this gain of 4.3 per cent for the year, which made the increase 17.8 per cent over the 1932 total, manufacturers are counting on the current year's output making an advance of fully 8 to 10 per cent. Production for January was 18 per cent in excess of the comparative 1934 figure, and was higher by 17.8 per cent than in December. Inventories, which had been reduced to 9,455,000 at the end of December, 1934, from the four-year peak reached at 11,981,000 in April, 1934, increased to 10,398,000 units on January 31, 1935. This was a gain of 10 per cent over the previous month's and 7.4 per cent over the inventories at the close of January, 1934.

The complete insolvency record of the rubber goods industry since 1927, including January and February of 1935, as compiled by Dun & Bradstreet, Inc., shows the following:

	Manufacturers		Wholesalers & Retailers	
Year	*Number*	*Liabilities*	*Number*	*Liabilities*
1927	4	$1,576,900	11	$133,400
1928	6	238,200	9	95,000
1929	4	268,000	2	4,600
1930	4	67,200	4	50,200
1931	8	1,952,170	7	212,100
1932	14	923,883	12	514,800
1933	7	139,968	6	68,888
1934	5	62,551	2	23,810
1935*	1	5,000	..	.....

(*) January and February, inclusive.

Of an approximate world consumption of 920,000 long tons of rubber in 1934, the United States took more than all the rest of the countries, accounting for 455,479 long tons. This represented an increase of 13.7 and 37.2 per cent, respectively, over the 1933 and 1932 figures, and surpassed all records back to 1929, when consumption totalled 469,804 long tons, according to statistics compiled by the Rubber Manufacturers' Association. In spite of this gain, consumption for 1935 is estimated at 500,000 long tons, which will establish a new all-time peak. The year started well in this direction, as January consumption at 46,103 long tons was a new high for that month, rising 19.9 per cent above the comparative 1934 total, and 28.5 per cent above that of the month preceding.

In February, however, consumption receded to 43,187 long tons, or less by 8.3 per cent than in January, but held 6.4 per cent above that of February, 1934. Imports for the month declined 15.9 per cent, in spite of the efforts being made by shippers abroad, interested in the success of the new rubber restriction plan, to bring about an early disposal of the large stocks of crude rubber that had been accumulated in trade channels in anticipation of higher prices.

1934 Average Volume Larger

Overcoming the losses which were set down for the Summer months, the widening of sales which started in October enabled both producers and distributors to close 1934 with an average volume larger by 15 to 25 per cent than that recorded for 1933. In spite of the recession in March, distribution has gained steadily, with turnover for the first quarter of 1935 ranging 25 to 30 per cent above that of 1934, while dollar sales showed an improvement of 30 to 40 per cent in the same comparison.

One of the bright spots for the rubber goods industry in many sections has been the distribution of mechanical necessities, such as belting, hose, washers, and insulation

tape, as large mills and industrial plants again are releasing orders in good volume. Consumer demand for raincoats, overshoes, and rubber sundries has been consistent with weather conditions, and the general improvement in business.

Continuing the downtrend which in 1933 reduced the number of failures by exactly half that set down for 1932, in 1934 the total for manufacturers, wholesalers and retailers of rubber goods was reduced to 7 from 13 a year earlier, or a drop of 46.2 per cent. From the all-time peak, which was reached in 1932 at 26, bankruptcies in 1934 were reduced by 73.1 per cent.

While the defaulted indebtedness of the firms that went bankrupt was not curtailed so largely as in 1933, when there was a drop of 85.5 per cent from the 1932 figures, the total of $88,361 in 1934 represented a decline of 57.7 per cent from the $208,856 for 1933. When compared with the peak loss which the industry has been forced to sustain because of failures, which occurred in 1931 at $2,164,270, the loss in 1934 was smaller by 95.9 per cent.

Discoloration in Vulcanized Rubber

DISCOLORATION in vulcanized rubber makes it impossible to produce a colorless, stable transparent rubber, or even a good white stock without excessive loading, according to Mr. B. L. Davies, English rubber chemist, who delivered an address on the causes for discoloration before the Preston (England) Section of the Institution of the Rubber Industry on February 4.

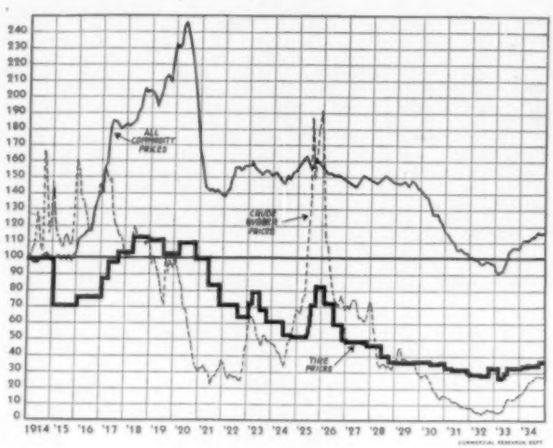
Among the causes contributing to discoloration pointed out by the speaker are a number of non-rubber substances normally present in plantation rubber. The yellow pigment carotin, present in pale crepe, is closely associated with the resin, both being extracted by acetone. There is also a natural antioxidant which is probably another contributing cause. The iron content of raw rubber increases tremendously during milling, giving organic iron derivatives. During processing, contamination with pigments of high tinting strength is liable to cause discoloration, a situation met with by masterbatching. Vulcanization also brings about a deepening of the brown tint, the depth being related to the combined sulphur and not to time of heating. Therefore, stated Mr. Davies, it is advantageous to use the fastest accelerators for white and transparent goods. Many accelerators produce a specific stain and careful selection is a necessity.

Antioxidants, too, often stain, according to the lecturer, even the so-termed non-staining examples developing a stain on ageing. This may be due to formation of organic iron compounds which are known to be produced when iron salts are added to a solution of an antioxidant. It is probable that the natural antioxidant stains in this manner. It has been discovered that the stain acts as a dye and is light-protective to the rubber. The fact that the reducing action on silver salts of the natural antioxidant is destroyed by ultra-violet light has been applied to the formation of pictures on rubber goods.

In concluding his address Mr. Davies pointed out that the color of transparent rubber depends largely on the presence of rubber-soluble stains, while its transparency is controlled by the degree of freedom from rubber-insoluble matter. With the exception of magnesium carbonate most of the usual fillers are said to be unsuitable. Sulphur, as accelerator and activator, must neither contain nor produce insoluble matter or bloom. The rubber industry is in need of a non-staining antioxidant which will give protection against light, as well as heat ageing, concluded the speaker, for with such a compound it would be possible to manufacture stable colorless transparent goods, with subsequent important developments in rubber production.

Retail Tire Price Range

IN 1896 Mr. Alexander Winton, of Cleveland, placed his now historic order with Goodrich for delivery of six pneumatic tires at a total cost of $300.00. The tires he received were little other than glorified bicycle tires without inner tubes. Both tire engineering and tire



prices have come a long way since that date, with the greater portion of change occurring in the last twenty years.

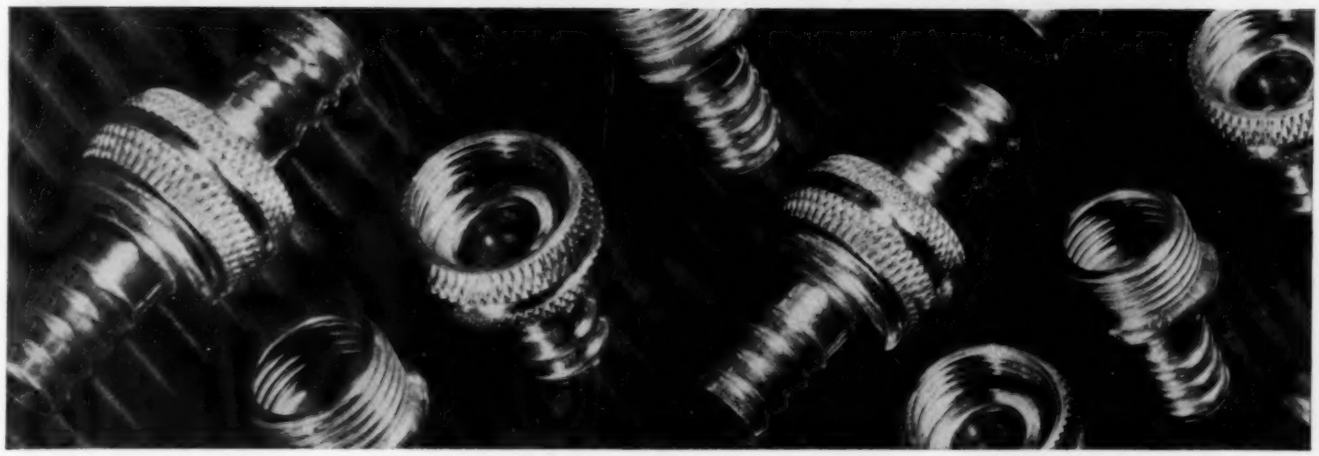
The accompanying chart, prepared by the Commercial Research Department of the Goodyear Tire & Rubber Company, shows the range of retail tire prices since 1914, and is based on tire prices in that year at 100%. The heavy line indicates the trend of tire prices; the lighter line shows the range of all commodity prices during the same period; and the dotted line points out the changing prices of crude rubber since 1914.

It will be noted from the chart that three general increases occurred in tire prices in 1934. In general, tire prices at the end of 1934 were 62% below the 1914 average in comparison to 16% above for all commodities. With mileage in tires greatly improved and prices relatively low, tire value to the consumer is greater than the average of all commodities.

New Sole Rubber Development

SAID to be the result of several years of intensive research, a new sole rubber has been developed by a French manufacturer which is claimed to provide for effective ventilation of shoes, yet withstanding the penetration of water. The process developed does not concern itself with the composition of the mixture at present used in the manufacture of ordinary rubber soles, but is utilized after the manufacture of the usual sheets prior to molding and vulcanizing. The process makes possible the manufacture of soles that are entirely permeable, or simply ventilated over a certain perimeter, by the fixing of permeable pieces.

According to its manufacturer the new sole rubber does not increase in volume when immersed in water, while its increase in weight is negligible in relation to the mass. Wear resistance is said to be equal to that of non-permeable rubber. Three factors are concerned in the efficiency of this newly developed rubber, i.e. effective permeability of the rubber used, the mechanism of walking, and the superficial tension on the surface of the human body. The manufacturer is interested in conducting negotiations with American rubber companies for the granting of exclusive rights in this country.



Aluminum Garden Hose Couplings Used in Connection with Rubber Hose

Aluminum in the Rubber Industry

By R. A. Keenan

Aluminum Company of America

FOUR new developments in the use of aluminum in the rubber industry commend themselves to the attention of rubber manufacturers because of the fact that aluminum has the virtues which are required of a good rubber mold. These developments include the pressed mold, the full-circle aluminum tire retreader, tube and tire models of the individual vulcanizer type, and forged shear plates for mill rolls.

An effective rubber mold should be strong, hard, light, cheap, inert, a good conductor, clean, impervious to sulphur, sulphur compounds, rubber solvents, and ammonia. It should be ductile and able to give surface brilliance. It should be a good conductor of heat.

Pressed molds, made by a special process, are very economical for small runs and give a more dense casting than that which is usually obtained from a die-casting. They give very smooth surfaces, extreme dimensional accuracy, and faithful rendering of detail—much the same as a die-casting, but without the expense.

The full circular aluminum retreader produces a clean tread surface, it heats faster and more uniformly than conventional retreaders and thus cuts the fuel costs considerably, while at the same time it is durable and practical. Tube and tire molds of the individual vulcanizer type were placed in operation during the past year, and to date no unfavorable reports on any of the installations have been made.

The forged shear plates for mill rolls, also of aluminum, were installed in several factories because they proved themselves better than the shear plates formerly used. The function of a shear plate is to prevent a mill roll from breaking under severe overloads. When an overload occurs, the shear plate should shear through immediately and relieve the load from the rolls. Aluminum was used because it has less variation in shear value from piece to piece. The aluminum forging will shear through immediately on an overload, while other metals have a tendency to recover, thus causing, at times, the break of the roll. An incidental advantage of the aluminum shear plate is that it has a high scrap value.

Aluminum, and by this is meant not only the pure metal, but also its alloys, has found a rather wide use in the production and processing of rubber. It is immune to attack by sulphur and its compounds, rubber solvents, and it is valuable because in the processing of rubber articles the rubber does not adhere to it.

Lightness has always been one of the principal advantages of aluminum, and this is no exception in the rubber industry. Movable equipment, such as molds, should be handled with maximum ease to reduce the fatigue of the operator. The use of aluminum in revolving or reciprocal parts accelerates their performance.

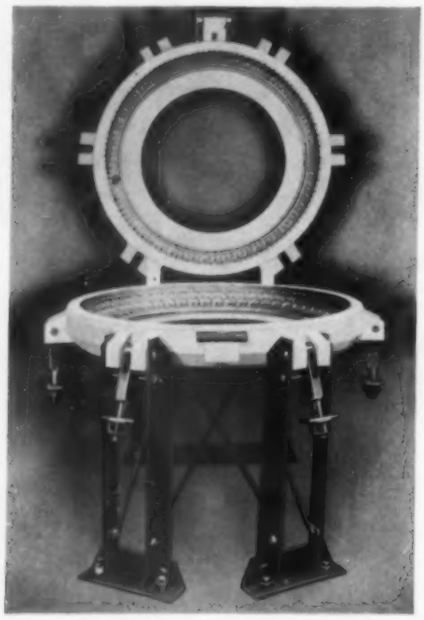
The strength of aluminum alloys has long been an established factor. Wrought alloys are available which have the strength of structural steel, yet retaining the desired characteristics of the pure metal. They can carry the same loads as malleable iron, cast iron or brass if the cross-sectional area of the part is slightly increased.

Aluminum conducts heat evenly and rapidly, much better than some of the older metals which, when heated,

Forged shear plates of aluminum for mill rolls have less variation in shear value from piece to piece.

develop "hot spots" which are undesirable in operations where an even distribution of heat is necessary.

Aluminum sheet, because it is easily kept clean, is used to cover table tops in mixing rooms, where every care must be taken to avoid contamination by foreign particles. If wooden cutting tables are not covered in this way, minute slivers may get into the rubber mixture. A number of rubber manufacturing concerns also use aluminum as a



Full circular aluminum retreaders heat faster and more uniformly than other types.

lining for storage bins. It does not affect, and is not affected by, the contents.

The brass plating of aluminum is a process which has been in use for some time. More recent than this, however, is the copper plate which is used to cover aluminum sheet in order to obtain the best rubber adhesion. This coating has worked out excellently for small parts and may develop a field of new uses.

Aluminum molds for the production of molded goods, mechanical goods, and sponge rubber goods may be easily machined. They do not require cleaning often and can quickly transfer the heat from the presses to the cavities in which various articles are cured. Aluminum forms cast in sand are largely employed in the manufacture of boots, tires, gloves, stocking forms, and bathing caps.

Dipping machine parts, frames, racks, conveyors, tracks, curing troughs, tumblers and other types of equipment used in the manufacture of goods from liquid latex are made of aluminum in the form of extruded shapes, sand castings, die-castings, permanent mold castings, screw-machine-products and sheet.

Adhesion between the metal band and the base of solid truck tires is increased by the use of large quantities of aluminum rubber compound in the rubber mixture. Another advantage of aluminum powder is its high opacity to light; it protects the rubber from the ultraviolet rays of the sun.

Other applications of aluminum in the rubber industry include the use of aluminum garden hose couplings, aluminum reinforced oil suction hose, aluminum nipples and flanges, dies for producing serial numbers and brands on tires, heater tree connections, circular and straight inner tube mandrels, trays, foil for curing soft and hard rubber articles, wrappers for golf balls and rubber tape, tire building drums and machine parts.

New Uses of Rubber

IN a series of discussions on new uses of rubber, made by Roy Peterson, development engineer in the Goodrich tire division, before various civic and industrial organizations, he reviews the progress of the transportation facilities of the world and the part played by rubber in making that progress possible. Describing a wide variety of rubber uses in the field of transportation and other fields, Mr. Peterson makes mention of two comparatively new interesting applications, viz: a sponge rubber expansion joint for highway use, and a rubber spring decking for inner spring mattresses merchandised by Goodrich under the trade name of "NuKraft."

For some time highway engineers have been seeking an expansion joint that is capable of both expansion and contraction to use between sections of concrete on highways. As is well known concrete expands and contracts with varying temperature changes and therefore must be laid in sections of 80-120 feet with some space between blocks. Generally the space between concrete blocks is filled with asphalt, but as the concrete expands the asphalt is forced above the surface of the road, and hollows are formed when the concrete contracts. A good expansion joint should not extrude above the road surface when the concrete expands. Goodrich is now producing a rubber expansion joint said to adhere to this requisite. It is made of sponge rubber, and joints used in an Ohio concrete road, near Youngstown, have been in service for more than three years with satisfactory results. Artificial ageing tests on this rubber expansion joint have shown that it will retain its life for 15 to 20 years, according to Mr. Peterson.

The second interesting development is NuKraft, a spring decking for inner spring mattresses. It is a rubber insulated hair cloth fabricated into loops forming a series of figure eight springs. Artificial ageing tests on this product indicate no appreciable depreciation of the rubber over a 10 year period. It is vermin-proof, sanitary and free from objectionable odors. NuKraft bridges the openings between springs and evenly distributes the weight. It not only provides additional springing, points out Mr. Peterson, but eliminates the necessity of tufting to keep the material in position. Another use for NuKraft is its application as spring decking for automobile cushions and upholstering.

Liquid Protective Rubber Coating

THE possibility of wrapping articles and merchandise in rubber, similar to those now wrapped in Cellophane, may become a reality in the next few months. A St. Clair, Michigan, company has developed a process to produce a non-inflammable liquid protective coating which it will place on the market shortly. The coating, according to report, can be handled like paint, and turns into live rubber on exposure to air a few minutes after application. The new product will be marketed under the trade name of "Kelsanite."

Kelsanite can be applied with a brush, it can be sprayed on, or articles can be dipped in it. It will adhere to any surface forming a complete protective coating. Yet it is said to be as easily removable as a Cellophane wrapper when it has performed its function. Since the coating is elastic, the natural cushioning action would provide a protection against accidental scratches or nicks in handling, thus making it adaptable to the protection of manufactured articles having finely finished surfaces, until they are to be used by the ultimate consumer.

Another claimed advantage of the material is that the article to which it is to be applied does not have to be completely clean and dry.

Changes in Tire Sizes

Tracing the Increase in Size of the Average Tire Produced Annually Over a Period of Twenty Years

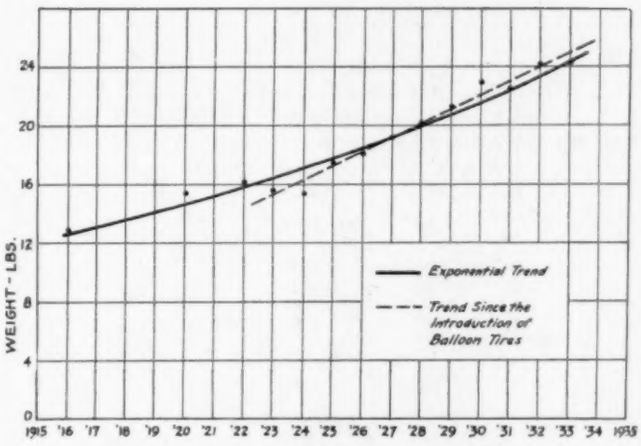
By L. E. Carlsmith

FEW commodities have changed so much in quality during the past ten, twenty, or thirty years, as has the automobile tire. The tire of today, of course, owes most of its increased service life to the numerous improvements which have been made in the nature and quality of the ingredients and to the advances in the mechanical construction of the casing. Neither of these improvements is very apparent in the outward appearance of the product. A third outstanding change in tire construction is that of the size of the tire. The average tire produced has been getting larger every year, so that today it is nearly twice as large as its counterpart of fifteen or twenty years ago. The tire with which the current motor car is equipped is even larger.

This shifting of the quality of the product, while by no means peculiar to the tire industry, is especially pronounced. The measuring of the growth of the industry, or of price changes, or of other economic features pertinent to the tire business therefore is complicated by the lack of a suitable standard of measure. Obviously the accepted standard of the trade, the number of units produced, leaves much to be desired. Criteria commonly employed for measuring commodities are volume, weight, unit items, and value. None of these is entirely satisfactory for measuring tire production over a long period because of the instability of the quality of the product and because of its changing social importance.

The last mentioned measure, value, is particularly inadequate in this instance owing to the great changes which have occurred in tire prices. Volume has little to recommend it, and the figures are not available. The ideal criterion for measuring tire production might be some standard of service such as ton-miles. This measure is not suitable because, in the first place, the data are not available, for no one knows how many miles all tires are driven and under what loads. In the second place, driving conditions, roads, speeds, climates, brakes, condition of cars, inflation of tires, and many other factors which cannot be measured will affect the life of a tire. Of the two remaining standards, weight and units, weight offers some advantages. For one thing it accounts for the change in size of the commodity. It considers the distribution of sizes of tires made at any time. The production of casings, inner tubes, and solid tires measured on a weight basis may be added to give a measure of the gross output of the industry, in the event that is desired.

Although the average weight of tires produced each year might be of value to one investigating certain economic or technical phases of the industry, the figures for this item are not to be found in the available literature. To supply this need the estimates appearing in Table I and the chart are offered.



Average weight of casings produced in the United States—1916-1933.

In an admirable publication entitled "Labor Productivity in the Automobile Tire Industry," Stern[1] gives the average weight for tires produced in six representative tire plants producing between 45 and 60% of the output of the entire industry for the period 1922-1931. The sample probably is sufficiently large to be representative of the industry as a whole. For the years 1925, 1930 and 1931 these estimates agree with those supplied by a large tire manufacturer. The figures used for the years 1920, 1932 and 1933 in Table I were supplied by the same manufacturer. For the years 1916 and 1920 the average weight of tires produced has been estimated from a published distribution of tire sizes[2], the weights of individual tires of various sizes and the distribution of cord and fabric tires. The latter are given by Holt.[3] The weights of individual tires may be found in mail order house catalogues of the years in question. The results of these estimates follow:

TABLE I

Estimated Average Weights of Pneumatic Automobile Tires Produced in the United States Annually

Year	Average Weight of All Casings (lbs.)	Average Weight of Inner Tubes (lbs.)
1916	12.8	2.6
1920	15.3	2.25
1922	16.1	2.24
1923	15.7	2.21
1924	15.4	2.23
1925	17.3	2.34
1926	18.0	2.45
1927	19.2	2.50
1928	20.1	2.65
1929	21.2	2.75
1930	22.9	2.98
1931	22.4	2.63
1932	24.1	...
1933	24.2	2.65

[1] Stern, B., Bul. of U. S. Bureau of Labor Statistics No. 585, "Labor Productivity in the Automobile Tire Industry." U. S. Govt. Printing Office, Washington, 1933.
[2] India Rubber World 56:284 (Feb., 1917).
[3] Holt, E. G., Rubber Industry Letter No. 17, Circular RU3545, 10/20/34, Bureau of Foreign and Domestic Commerce, Washington.

The increase in size of the average tire produced each year as a function of time is illustrated graphically in the accompanying chart. An exponential trend line has been fitted to the period for the whole period. This is the heavy line in the plot. The derived equation, $y = 12.7(1.04)^x$ indicates that tires have been increasing in weight at a rate of about 4% per annum. In the equation, **y** refers to the weight of the average tire produced in any year in pounds and **x** to time in years, the year 1916 being the year of origin. Incidentally, the average deviation of the observations from this line is less than 3 per cent. For the period 1923 to date (since the introduction of the balloon tire) a straight line trend fits the data more closely. (See the dotted line, $y = 15.3 + 0.95x$.) The average deviation of observations from this line is 2 per cent.

Extrapolation of these trend lines in either direction of course must not be attempted on the grounds that they represent any fundamental relationship between tire weights and time over an indefinite period. For the period covered, however, they do describe an empirical relationship. Moreover, it may confidently be predicted that the weight of the average tire will continue to increase for some years, probably somewhat as indicated by this trend.

The trend toward larger tires also is indicated by the figures in Table II. These are the sizes and weights of tires on a standard light car, the Ford.

TABLE II

Size and Weights of Tires of Ford Car 1914 to 1935.

Year	Tire Size	Weight of Tire 4 ply	Weight of Tire 6 ply	% 6 ply Produced	Ave. Wt.
1914	30 x 3.30 x 3½	9 lbs.	...	...	9 lbs.
1921	30 x 3.30 x 3½	11	...	...	11
1924	30 x 3.30 x 3½	13	...	...	13
1926	29 x 4.40	14.3	16 lbs.	5	14.25
1928	30 x 4.50	15.7	20	12.5	16.25
1930	4.75 x 19	16.9	21.1	21.6	17.8
1932	5.25 x 18	18.55	23.8	24	20
1933	5.50 x 17	20.8	25.8	22	21.9
1935	6.00 x 16	21.5	23.0	20 *	22.8

* Estimate.

Only two makes of cars shown at the New York Automobile Show this year were equipped with smaller than six inch tires.

Parazin Rubber Printing Plates

NOT to be confused with ordinary rubber plates or linoleum blocks, Parazin printing plates, made by a patented process, formula, machinery and equipment for which are owned by the Parazin Printing Plate Company, Burke Building, Rochester, N. Y., are made with a composition rubber base which is resilient and does not buckle or warp in use. They are regularly used by advertisers and printers in several countries for both plain and engraved surfaces.

Printing with rubber plates has several advantages, one of the most important of which is economy, the cost being from 30 to 50% less than zinc. They give the same accuracy of detail and impressions as metal. They stand up equally well with zincs. The resilient printing surface of rubber has a natural affinity for inks, which gives a smooth, even spread of color. Parazin prints all inks equally as well as zincs and in most cases requires less ink spread, according to its manufacturer.

An additional savings in the use of Parazin plates lies in the fact that the plate is engraved directly from the original color sketch. No finished art work, other than color sketch, is required. No black and white drawing is necessary. Probably one of the most popular Parazin plates used by advertisers today is the newly developed "A" plate. This plate is type high. It is a molded one-piece plate and cannot strip. In its unengraved surface it is ideal for tints, plain color areas and varnishing. But the big majority of these type-high plates are delivered engraved ready for printing. Because of its lack of a metal shoulder and its ready adaptability to register, it requires less make-ready than zincs.

Parazin plates are engraved by hand. In some cases when printers decide to run a job more than one up, they are used extensively to replace electros. They provide the same accuracy of detail and register because of the offset to which the original drawing is subjected. Another saving which these plates afford is the simulation of hand lettering. Regular type fonts can of course be readily followed. Inasmuch as these plates are hand engraved, the one operation is all that is required whether it be hand-lettering or the more familiar type faces.

Parazin plates, according to the company, are used extensively for banners, broadsides, stuffers, display cards, paper boxes, leather and metal imprinting. Reverse plates and similar areas lend themselves with remarkable facility to this process. Many photo-engravers combine the two plates in one job. Inasmuch as Parazin does not lend itself to Ben Day work or highlight halftones, this work very properly remains in the field of photo-engraving. But when a zinc photo-engraving is combined with Parazin plates in lettering, color and other engraved designs, the result is good register and reduced over-all costs.

The process of plate preparation is the same, whether for printing with watercolor or oil inks. The care in wash-up is the same as metals. The same fluids for washing up metals will give equally satisfactory results on Parazin. And, it also follows, that inferior fluids will affect these rubber plates as they do metals.

Age-Rite Syrup—An Antioxidant

INTRODUCED as a general purpose antioxidant for use in rubber, Age-Rite Syrup has been added to the line of Age-Rite products made by the R. T. Vanderbilt Company, of New York. It is described as being a Ketone-Amine reaction product, pale brown and clear in color, having a specific gravity of 1.03 (one gallon weighs 8.6 pounds).

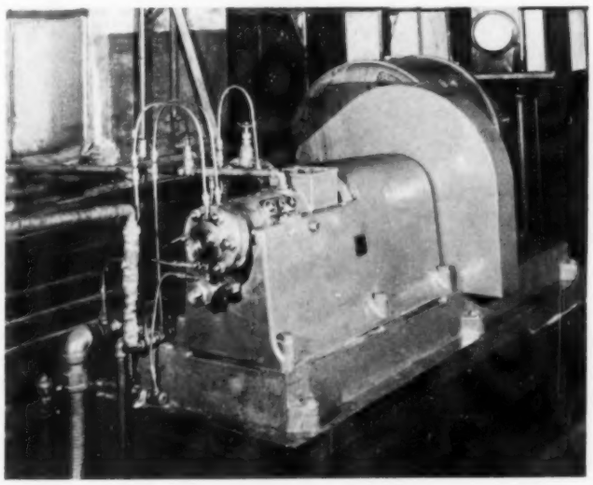
Liquid or syrupy antioxidants do not have the strong blooming tendency characteristics of antioxidants in powdered form, according to Vanderbilt, and therefore can be used in higher proportions without fear of blooming. When used with a blooming antioxidant they sometimes tend to prevent the latter from blooming. Syrupy antioxidants are also said to be easier to incorporate with rubber, can be weighed off easily, and may be poured directly on the rubber on a mill or in a Banbury, or they can be masterbatched. They have a mild softening effect which helps the mixing and processing of difficult stocks.

Age-Rite Syrup may be used up to 3% without danger of blooming. It imparts good flex-cracking properties as well as good ageing quality to rubber compounds. It activates cure less than Age-Rite Resin, but slightly more than Age-Rite Powder, Gel, or H.P. Usually no adjustment of accelerator will be required. The new syrupy antioxidant is uniform and stable and when kept in open containers none of it volatilizes nor does it thicken on long standing. It has a viscosity of the order of Retort Pine Tar used largely in rubber compounds. Age-Rite Syrup stains somewhat and discolors when exposed to light. For this reason it is not recommended for white or delicately colored stocks.

New Equipment

Convertible Laboratory Plasticator

A COMPLETE miniature laboratory plasticator, which is convertible into a tubing machine, has been brought out by the Farrel-Birmingham Company, Inc., Ansonia, Connecticut. Equipped with a three-inch rotor, the new machine has all the features of the larger models. Built for experimental purposes, tests have proved the machine successful as a plasticator in breaking down rubber, in some preliminary work fine grinding reclaim crumbles, and in such foreign fields as masticating certain basic lacquer materials. For regular laboratory or for small scale commercial work, an hour's work turns the machine into a tuber. Any form of screw or head can be used. The machine is mounted on a heavy cast iron base



which also holds the motor. The drive pinion is cut with the Sykes continuous herring-bone tooth. A 20-h.p. variable speed motor drives the machine, but most operations require less power. 240 pounds of rubber (smoked sheet) can be broken down in an hour. The amount of breakdown obtained in one pass is equal to about 15 minutes working of 25 pounds on a sixty-inch mill. Successive passes through the machine give increasing hourly production and better plasticity.

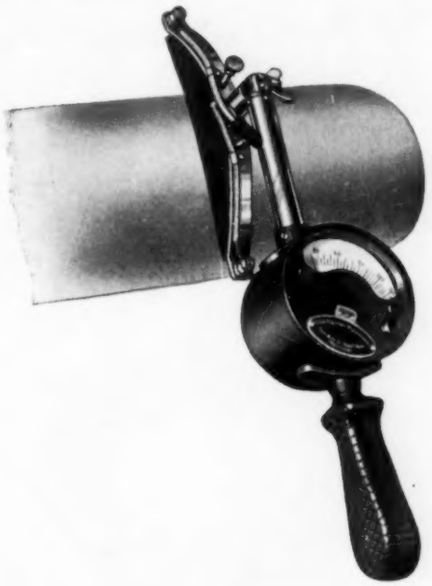
Improved Heavy Duty Calender Shell

TO COMPENSATE for the additional punishment large diameter shells must stand under modern usage, the W. F. Gammeter Company, Cadiz, Ohio, has strengthened the internal construction of their large diameter calender shells. Stamped steel spiders in the new shell are

fitted with malleable hubs, which stiffens the web of the spider and provides a liberal bearing surface supporting the central tube. The improved heavy-duty shell can be supplied in 8, 10 and 12 inch diameters, with 1⅜" opening for 1¼" mandrel, and with 2⅛" opening for 2" mandrel, in any lengths from 6 to 100 inches.

Pyro Surface Pyrometer

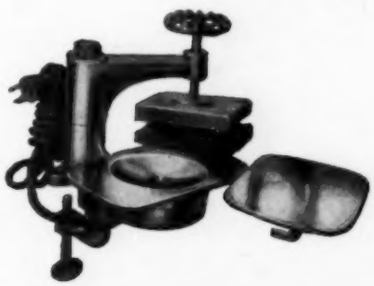
DESIGNED for measuring curved or flat, stationary or moving surfaces, the Pyrometer Instrument Company, 103 Lafayette Street, New York City, has introduced a new model Pyro Surface Pyrometer. Said to be self-



contained, rugged, and quick-acting, the instrument can be furnished in either Type A, for flat surfaces, or Type B (illustrated herewith), for curved surfaces. According to the manufacturer the contact and reading of the actual temperature no longer need be made simultaneously, since, due to a patented clamping device, the indicating needle will stay fixed at the highest temperature. When contacting the thermo-couple a red button on the indicator housing is pressed and held for a few seconds. The pressure on the button is released before removing the thermo-couple from the surface being measured, a fixed indication of the temperature measurements thus being obtained. Another pressure on the red button causes the pointer on the indicator to return to its zero setting. Model B, for curved surfaces, is furnished with varied ranges including 30 to 250° F. and 100 to 1000° F. Extension handles can be furnished to meet individual requirements.

Schrader Electric Vulcanizer

ESPECIALLY designed for making smooth replacement attachment of Dubltite and rubber base valves, manufactured by the same concern, the A. Schrader's Son Division of the Scovill Manufacturing Company, 470 Van-



derbilt Avenue, Brooklyn, New York, has introduced a new electric vulcanizer. Features of the new vulcanizer include a special plate with molded cavity designed to make

correct "feather-edge" adhesions; an economical heating unit (for either alternating or direct current) that, it is reported, cannot overheat; a sturdy frame with swinging arm; and a clamp device which makes it readily portable or permits permanent installation. A flat plate is also supplied along with the new electric vulcanizer for making ordinary tube repairs. It lists at $7.50, complete.

Tyrewelder Retreading Mold

DESIGNED to successfully handle modern balloon, heavy duty, and high pressure tires in any size and shape, the Akron Tyrewelder Company, a division of the Akron Equipment Company, Akron, Ohio, has introduced an improved full circle retreading mold under the trade name of the Tyrewelder Retreader. Large steam chambers and ¾" pipe connections provide for a full flow of steam. Non-skid designs are cut directly into the mold

providing for quick and equal heat to all parts of the tread insuring even cures. The side-wall flanges are reinforced by fins which add strength to the mold in addition to radiating heat and keeping the side walls below curing temperature. Each mold half and each spacer ring has a register fit all around. Accurate hinge adjustment for various sizes is effected by inserting spacer blocks, provided by the company, into the hinges. A dowel pin centers the mold as it closes.

Hand Grip Rubber Gauge

DESIGNED for measuring the thickness of material as it moves through the calender, Frank E. Randall, 248 Ash Street, Waltham, Massachusetts, has introduced the Randall & Stickney Hand Grip Rubber Gauge. Regularly fitted with two rolls, flat feet may be substituted if the rolls are not desired. Several weights, ranging from 1 to 10 ounces, are available. The height of the gauge is 9", length 9¾", depth of throat 6½". The dial has 50 divisions, each division representing 1/1000". The gauge has a range of ½", weighs 4 pounds, and has an aluminum frame. Five different models of this hand grip rubber gauge, all new, are ready for the market.

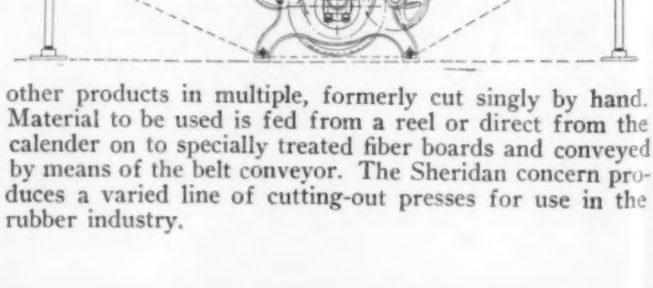
Federal Portable Measuring Gauge

A SPECIAL portable gauge that measures the web and wall thickness of rubber tubing for insulated wire accurately and rapidly has just been built by the Federal Products Corporation, Providence, Rhode Island. The new gauge was constructed on the precept that in measuring compressible material such as rubber it is necessary to have the predetermined amount of pressure on the measuring member. Ordinarily, according to Federal Products, dial indicators are actuated by springs, hence the pressure is not constant throughout the range of the instrument. To overcome this a weight is mounted on the top of the spindle in the new gauge and the spring removed in order

to give constant pressure. The new gauge measures to .0005 inches, allowing easy inspection. The tubing is inserted through a pin. It is not necessary to slit the tubing in order to measure the wall thickness. The improvements on the portable gauge, termed Model 790, make it a rapid method for measuring tubing.

Sheet Rubber Cutting Press

EQUIPPED with a conveyor which moves intermittently in time with the operation of the press, a 44" x 22" sheet rubber cutting press has been put on the market by the T.W. & C.B. Sheridan Company, 183 Essex Street, Boston, Mass. The machine is designed for use in cutting shapes required for making rubber shoes, and



other products in multiple, formerly cut singly by hand. Material to be used is fed from a reel or direct from the calender on to specially treated fiber boards and conveyed by means of the belt conveyor. The Sheridan concern produces a varied line of cutting-out presses for use in the rubber industry.

REVIEW SHELF

• Monthly Review of New Books, Pamphlets, Company Catalogs, Service Bulletins, House Organs, etc., Pertinent to the Industry

HOMESTEAD VALVES. Distributed by the Homestead Valve Manufacturing Company, Coraopolis, Penna. 48 pp.

Valves of every conceivable shape and form are adequately described and illustrated in this catalog issued by one of the foremost valve manufacturers in the country. It is replete with specification tables and technical information of value to every factory manager and engineer. Illustrations depicting various installations of the company's valves and valve systems in prominent factories are strewn throughout the catalog. Two pages are devoted to suggested uses for Homestead Valves in a large number of varied industries.

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ZENITE, ZENITE A AND ZENITE B. (Laboratory Report No. 190). Issued by the Rubber Chemicals Division, E. I. du Pont de Nemours & Company, Inc., Wilmington, Delaware. 10 pp.

Zenite is the zinc salt of mercaptobenzothiazole which contains 10% of a hydro-carbon wax which serves as a dispersing agent. Its properties are similar to those of mercaptobenzothiazole with the exception that it is a weaker accelerator and has considerably less tendency to cause scorching. A complete description of the three different types of Zenite available, together with the individual properties of each, is contained in this report which is based on results determined by the Rubber Laboratory of the Du Pont Organic Chemicals Department. Suggested formulas and the results of physical tests made with Zenite and Zenite in combination with other accelerators are given, seventeen compounds being tested in all.

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RUBBER AND COMPOSITION MACHINERY. Distributed by Stewart Bolling and Company, Inc., 5207 Lakeside Avenue, Cleveland, Ohio. 40 pp.

Containing a wide and varied list of new and rebuilt machinery this catalog is well illustrated. Machinery described and priced includes mills, Banburys, sheeters, crackers, calenders, tubers, strainers, vulcanizers, presses, and the like. Specifications of several of the models included in the catalog are given. The machinery described includes practically every type known and used in rubber factories.

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THE STORY OF THE TIRE. Published by the Goodyear Tire & Rubber Company, Akron, Ohio. 48 pp.

With the statement that "the story of Goodyear is the story of the tire" Goodyear has published the fifth edition of this "story", the first of which was issued in 1922. The latest edition is a decided improvement over previous issues in style, make-up and information. Concise description is made of rubber cultivation, fabric production, and tire and tube manufacture. Every step is well illustrated. Other chapters in the book are devoted to the wide variety of rubber products turned out by the Goodyear factories. The importance of rubber research and development is stressed. Brief biographies of the company's administrative officers are included. Dozens of Goodyear products, from tires to rubber bands, are illustrated. The book makes excellent reading for the rubber novice as well as for the rubber executive interested in learning of Goodyear's progress.

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METALLIC ZINC POWDER IN INDUSTRIAL PAINT. Issued by the New Jersey Zinc Company, 160 Front Street, New York City. 16 pp.

Industry is continuously experimenting with rust-preventive coatings in a constant search for economies in its battle against rust. With each new industrial building development metal primers become more important. The advantages of paints containing Metallic Zinc Powder (often referred to as Zinc Dust), especially in combination with Zinc Oxide, are outlined in this booklet. Including a history of the uses of Zinc Dust in paints, which dates back to 1840, the booklet claims superior adherence, excellent hiding power and a wide range of uses for Zinc Dust paints. Several good illustrations of applications add to the attractive appearance of the booklet.

MECHANICAL MOLDED RUBBER GOODS
We Solicit Your Inquiries
THE BARR RUBBER PRODUCTS COMPANY
SANDUSKY, OHIO

METHODS OF HANDLING CUSTOMER COMPLAINTS. Prepared by the Policyholders Service Bureau, Metropolitan Life Insurance Company, One Madison Avenue, New York City. 35 pp.

Contrary to popular belief a surprising number of companies, according to this report, look upon customers who come bearing complaints as assets rather than liabilities. There is a growing opinion that complaints properly handled offer opportunities for selling the complainant on company service. Complaints, too, if properly handled, suggest better ideas for the product involved and improved service. This is the gist of this report prepared from a survey of business executives on methods of handling customer complaints. Several case studies are presented, many of them illustrated with the types of forms used by prominent organizations in the manufacturing field in recording the receipt and subsequent handling of various complaints.

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INVENTORY CONTROL METHODS. Prepared by the Policyholders Service Bureau, Metropolitan Life Insurance Company, One Madison Avenue, New York City. 30 pp.

To keep stock on hand as needed and yet to avoid excessive inventories is one of the major problems of the larger industrial organizations, including those of the rubber industry. The advantages of proper inventory control are two-fold, viz: economies from an investment viewpoint, and economies from an operating viewpoint. This report embraces the experiences of many leading companies that have improved their control methods in the last few years. Reproductions of varied inventory records, reviews and forms are included in the booklet.

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TIRESIDE CHATS. (Number Two). Published by the Fisk Tire Company, Inc., Chicopee Falls, Massachusetts.

Addressed primarily to tire dealers and distributors this house organ concerns itself with a one-sided discussion by E. D. Levy, president of Fisk, on the subject of the independent dealers' position in the industry today. It includes a series of charts and graphs depicting the trend of replacement tire sales through retail channels during the period of 1922-1933. It is replete with percentages outlining the position of the independent in comparison with chain and mail order syndicates.

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26TH REPORT OF THE RUBBER GROWERS' ASSOCIATION, INC. Published by the Rubber Growers' Association, Inc., 19, Fenchurch Street, London, E.C. 3, England.

A report of activities and a statement of accounts for the year ending December 31, 1934, is contained in the 26th R.G.A. report. Brief mention is made of the progress of each of the Association's numerous committees in addition to specific mention of technical research and new product development conducted during the past year. A complete list of members, both company and individual, is also included.

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GOODYEAR MOTION PICTURES. Distributed by the Goodyear Tire & Rubber Company, Akron, Ohio. 36 pp.

This catalog contains a complete list of the twenty-nine motion pictures prepared by Goodyear for showing at public and private functions. Each film available is listed and sufficiently described. The films run from those depicting rubber cultivation in the Far East to action pictures of motorcycle races. No charge is involved to the exhibitor of these films.

Editorial Comment

Strike Settlement

AS PART and parcel of the rubber industry we were among those who heaved a sigh of relief when the tense situation in Akron was eased through the intervention of Secretary of Labor Perkins. But, despite the heading above, we doubt if the impending strike at the Goodyear, Goodrich and Firestone factories was "settled." Rather it should be termed "strike postponement."

One of the four clauses agreed to between the rubber factories and American Federation of Labor representatives, was that union workers would remain at their work pending final disposition by the courts of the Government's right, via the National Labor Relations Board, to compel Goodrich and Firestone to hold employee elections to determine employee representation. Although the Cincinnati Court of Appeals is expected to render a decision in the next several weeks "final disposition" will not be made for several years. Irrespective of the decision it will be appealed and re-appealed until it reaches the Supreme Court, a matter of three or four years. So, labor turmoil in Akron, at least as it affects the larger rubber companies, has been "postponed," not "settled."

Another point in the agreement that postponed hostilities seems questionable to us. The employers, the union and the Secretary of Labor agreed to "postpone the National Labor Relations Board's election order." It was, and is, our understanding that only the President has any authority over the actions of the labor board. But, in this case, it seems best to let well enough alone. And so we join the legions applauding the "settlement" of the Akron labor difficulty.

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Industrial Modernization

STATING that "we are on the very threshold of a magnificent prosperity for the reason that American Industry can no longer afford to struggle along with obsolete or antiquated and inefficient equipment," James A. Moffett, Federal Housing Administrator, outlines the reasons and beliefs for this opinion in an exclusive article appearing in the May, 1935, issue of *Mill and Factory*. Quoting various estimates pertaining to "the potential demand for new machinery, accumulated during the five depression years," Mr. Moffett is emphatic in his statement that: "It is industry's job to bring back national prosperity, for the simple reason that industry needs this stupendous amount of modernization and repair." The cost of modernization he refers to ranges from six to eighteen and a half billions of dollars.

For the purpose of stimulating durable goods production Congress passed the Housing Act, advocated by President Roosevelt. Originally the emphasis was placed on the modernization of homes and business buildings. The Administration soon realized, writes Mr. Moffett, that the government-insured loan of $2,000 provided for in the Act was insufficient for the modernization needs of industrial factories. Therefore, Congress received the request that the limit be raised to $50,000 for the benefit of industrial plants, hotels, etc. This request, in the form of a bill, has already passed the House and Senate and is expected to be enacted into law shortly.

The passage of this bill into law is important to dozens of medium-sized rubber companies most of which are eligible to apply for government-insured loans up to $50,000 for modernization purposes. Administrator Moffett, in the article under discussion, makes it clear that "Industry may feel sure that, when it applies to the Housing Administration for the modernization loans it desires, it will find us as liberal in the application of the law as we can possibly be." In his opinion every applicant for a modernization loan, justifiably entitled to that loan, adds another spoke in the wheel of early recovery.

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Restriction Continues

THE AMERICAN rubber industry has been so deeply engaged in ironing out its labor difficulties that we doubt whether it has paid much attention to the workings of the restriction scheme under the capable administration of the International Rubber Regulation Committee. It is now almost a year since restriction was agreed upon by the producing nations, and the feared rise in prices has not yet been consummated.

However, as James Fairbairn pointed out, in his address on April 16, when he retired as Chairman of the Rubber Growers' Association (England), restriction is "not a little boat that can be floated without causing the slightest ripple on the water. It is a huge liner and must necessarily take time to be launched, equipped and got to sea." Restriction has been launched, it is still being equipped, and its putting to sea will occur before the end of the agreement in 1938.

The Leather and Rubber Division of the Department of Commerce recently pointed out the closeness with which exports of rubber from the Netherlands approached the exportable allowance during 1934. These export shipments came within one per cent of the permissible total. Control over Dutch Native rubber was one of the principal concerns of the restriction scheme. Other factors, too, are indicative that the "liner" will soon be "got to sea." The foreseeing rubber manufacturer will keep restriction in mind at all times.

CURRENT • NEWS
of the Rubber Industry

MAY, 1935

Rubber Division, A.C.S., Holds Successful Meeting With Technical Papers and Entertainment Featured

Eight Papers Presented at Technical Sessions Held at Hotel New Yorker—Crude Rubber Committee Is Formed after Dr. Rhodes' Address—Other Details

THE RUBBER DIVISION held its annual meeting, featuring the presentation of technical papers and varied entertainment, during the week of April 22, in conjunction with the 89th Annual Meeting of the American Chemical Society, in New York City. Close to 300 were in attendance at the technical sessions, while some 485 attended the Division's annual dinner on Monday night, April 22. The meeting was reported as being one of the best attended and conducted in a number of years, with all events transpiring as scheduled. The Hotel New Yorker served as headquarters for the Division.

In all, eight technical papers were presented at sessions held on Monday afternoon, April 22, and Tuesday morning, April 23, supplemented by two additional addresses of an informal nature presented by Thomas Midgley, Jr., and Dr. Edgar Rhodes, respectively. The technical papers, together with their authors and company connections, in order of their presentation, follow:

The Molecular Weights of Natural and Synthetic Rubber by the Svedberg Ultracentrifuge, E. O. Kraemer and Wm. D. Lansing, DuPont; Reinforcement of Rubber by Pigments. 1. Effect of Moisture on Measurements of Heat of Wetting of Gas Blacks, C. W. Walton and H. J. Osterhof, Goodyear; A Fatigue Cracking Test for Tire Tread Compounds and Some of the Laws of Fatigue, E. T. Rainier and R. H. Gerke, U. S. Rubber; Mixed Reinforcing Pigments in Rubber. 1. Effect of Binary Mixtures of Zinc Oxide, Channel Black, and Clay on the Physical Properties, O. D. Cole, Firestone; Heats of Reaction of the System: Rubber Sulfur, A. T. McPherson and Norman Bekkedahl, Bureau of Standards. These papers were presented on Monday afternoon.

Studies on the Variability of Plantation Rubber, A. E. Warner, C. P. Hall; The Carbon and Hydrogen Content of Hard Rubber, H. L. Fisher and Y. Schubert, U. S. Rubber; Consumers' Crude Rubber Requirements, George A. Sackett, Goodyear. These three papers were presented on Tuesday morning. (Abstracts of these eight papers will be found in the April, 1935, issue of THE RUBBER AGE).

Prior to the presentation of the first technical paper on Monday afternoon, Mr. Midgley delivered a brief address on "Contributions of Chemistry to the Rubber Industry." He traced the early beginnings of rubber chemistry in New England, including the developments leading up to the Goodyear and Hayward patents on vulcanization. Mr. Midgley is vice-president of the Ethyl Gasoline Corporation and is credited with the discovery of ethyl gasoline.

The second guest speaker at the sessions, Dr. Edgar Rhodes, head of the Chemical Division of the Rubber Research Institute of Malaya, was introduced at the conclusion of the last of the papers presented on Tuesday morning, that by George A. Sackett on "Consumers' Crude Rubber Requirements." He replied directly to Mr. Sackett's comments and discussed the problems of the planter.

Outlining the position of the Rubber Research Institute as that of an advisory body, since it is not under governmental supervision, Dr. Rhodes stated that climate, soil, tapping methods, and other angles all contributed to variations in latex. Due to the action of bacteria, latex changes in acidity after tapping, reaching the factory in variable conditions. It is this variability that must be smoothed out in order to accomplish product uniformity. He told of the modern methods adopted by factories in the Far East which enable a more uniform product than heretofore, comparing them with earlier methods used.

Crude Rubber Committee

Regarding the matter of plasticity, Dr. Rhodes admitted that very little is known at this time. As for rubber with low water absorption, he stated that if such a rubber was produced it would not even faintly resemble ribbed smoke sheets. At the conclusion of his interesting discussion Dr. Rhodes urged there be frequent round-tables between users and growers of rubber on various problems of mutual interest. Immediately following this address, Dr. Cadwell, chairman of the Rubber Division, appointed a Crude Rubber Committee consisting of Harold Gray, Goodyear, as chairman, and the following members: E. B. Babcock, Firestone; George A. Sackett, Goodyear; W. A. Gibbons, U. S. Rubber; and J. C. Walton, Boston Woven Hose.

The function of this committee is to promote a better understanding between the producers and consumers of crude rubber and to act as a clearing house between the two groups for information on the quality requirements for various crude rubbers, including latex and to exchange opinions on the value of new types of crude rubber, etc. The committee proposes to establish contact with the various technical agencies allied with the producers on the matter of quality requirements, methods of testing, and evaluation of new types of rubber, including latex. It will concern itself only with technical aspects of the problem, and will deal only with those items the information on which can be made public.

At the business session following the appointment of the Crude Rubber Committee, Secretary-Treasurer C. W. Christensen revealed that the total membership of the Rubber Division as of April 17, 1935, was 401. This total represents members and associate members who have paid 1935 dues. His financial report disclosed a balance in the bank of $4,436.72, which does not include $2,436.05 tied up in Division funds at a bank still in liquidation.

The following members were named as the Nominating Committee to select officers for the Fall meeting, which will be held in

Gift Donors

The following companies contributed gifts and cash which were distributed in the form of prizes at the annual dinner of the Rubber Division, A.C.S., held at the Casino de Paree, in New York City, on Monday night, April 22.

L. Albert & Sons, American Cyanamid & Chemical Corp., American Zinc Sales Co., Ansbacher-Siegle Corp., Binney & Smith Co., Columbia Alkali Works, Curran & Barry, E. I. du Pont de Nemours & Co., Flexo Supply Co., General Atlas Carbon Co., General Electric Co., Givaudan-Delawanna, Inc., J. M. Huber, Inc., Imperial Color Works, *India Rubber World*, Midwest Rubber Reclaiming Co., H. Muehlstein & Co., National Sherardizing & Machine Co., Naugatuck Chemical Co., New Jersey Zinc Company.

Pequanoc Rubber Co., Philadelphia Rubber Works Co., THE RUBBER AGE, Rubber Service Laboratories Co., St. Joseph Lead Co., St. Lawrence Trading Co., A. Schrader's Sons, Southwark Mfg. Co., Stamford Rubber Supply Co., C. J. Tagliabue Mfg. Co., Turner Halsey Co., United Carbon Co., U. S. Rubber Reclaiming Co., R. T. Vanderbilt Co., and Wishnick-Tumpeer, Inc.

Akron sometime in September, and not on the West Coast as previously believed: Ira Williams (DuPont), L. B. Sebrell (Goodyear), and H. L. Fisher (U. S. Rubber).

The Annual Dinner of the Division was held on Monday night, April 22, at the Casino de Paree, in New York City. Following the presentation of prizes, a splendid revue was staged featuring the famous Jimmy "Schnozzle" Durante, whose quips concerning various rubber executives and divisional officers present were well received. Several table favors were distributed at each plate. Still another feature of this year's function was a souvenir menu program, printed on rubber, a donation of the New York Rubber Group. Almost five hundred members and guests were present at the dinner. After paying all expenses a surplus remained which was turned over to the Secretary of the Rubber Division.

The following night, Tuesday, April 23, the Nichols Medal Dinner was held at the Hotel Pennsylvania, during which Father Julius A. Nieuwland, of Notre Dame, was persented with the Nichols medal by Mr. J. M. Weiss, of the New York Section, A.C.S. After the dinner several excellent speeches were delivered by Father Burke, of Notre Dame, who discussed "Nieuwland, the Man;" E. R. Bridgwater, of DuPont, on "Practical Applications of Father Nieuwland's Work;" and a discussion of "Syntheses from Unsaturated Hydrocarbons" by Father Nieuwland, himself, who tempered his talk with many dry witticisms and comments.

Several hundred visiting technical men and chemists were the guests of the Binney & Smith Company, New York, at the Nichols Medal Dinner. Following the dinner these guests were conducted to the Biltmore Hotel where an elaborate entertainment was staged for them, and a light supper served.

In addition to these entertainment features connected with the 1935 meeting, several hundred visitors were driven by bus to Passaic, New Jersey, where they were conducted through the plants of the U. S. Rubber Company, the Okonite Company, and the Manhattan Rubber Mfg. Company. Visitors had their choice of any two of these three plant visits, which were held on Tuesday afternoon, April 23.

Set Date for Service Show

Announcement has been made by the Joint Operating Committee of the 1935 Automotive Service Industries Show that this year's function will be held in the Auditorium at Atlantic City, N. J., December 9 to 13 inclusive. As in the past the show will be sponsored jointly by the Motor and Equipment Manufacturers' Association, the Motor and Equipment Wholesalers Association, and the National Standard Parts Association. J. M. Spangler, National Carbon Company, New York City, is chairman of the Joint Operating Committee in charge of all arrangements.

Predicts Gain in Consumption

Pointing out that world consumption of crude rubber had increased from 471,000 tons in 1924 to 930,000 tons in 1934, James Fairbairn, in his retirement speech as chairman of the Rubber Growers' Association, of England, on April 16, predicted that a similar increase will take place in the next decade. He declared that if only a few of the many investigations now being carried out to find new uses for rubber were successful a substantial increase in consumption could be expected from that source.

What! No More Golf?

Prior to the year 2035 the grand old game of golf will vanish from the American scene, according to Thomas Midgley, one of our leading chemists, vice-president of the Ethyl Gasoline Corporation. Mr. Midgley, in discussing "Chemistry in the Next Century," before the opening of the 89th Annual Meeting of the American Chemical Society, held in New York City last month, based his statement on the belief that synthetic rubbers and guttas will soon be made so resilient that even the average golfer will be able to knock a golf ball some 2,000 yards. Naturally, under such conditions, there will not be sufficient room for a golf course.

UNION DEMANDS CLOSE INDIA TIRE FACTORY

The factory of the India Tire Company, at Mogadore, Ohio, was shut down at midnight, Saturday, April 27, throwing 200 employes out of work. According to President W. G. Klauss, the factory will remain closed for an indefinite period because "we cannot accede to the union leaders' demands for unwarranted and impossible wage scales." The company is the only one in the rubber industry which is 100% organized under the American Federation of Labor.

Shortly after the shut-down the India Tire union local established a picket line around the factory, although no attempt was made by officials to either attend or operate the plant. A skeleton force was installed at the Hotel Mayflower, in Akron, to carry on urgent business. The shutdown, according to rubber labor leaders, amounts to a lock-out. India Tire recognized the union in February, 1934, shortly after it discharged a receivership and reorganized.

Ohio Appeals Mold Case

The Ohio Tax Commission, and Auditor J. C. Mong, filed briefs in the Ohio Supreme Court, at Columbus, on April 16, in support of a motion for an order requiring the Summit County Court of Appeals to certify its record in a case against the B. F. Goodrich Company, Akron. The Akron Appellate Court on March 1 upheld the decision of the Common Court to the effect that tire and rubber molds are "dies" and as such are not subject to tangible taxes. The Tax Commission is attempting to collect a tax on these molds from Goodrich, the legal decision naturally affecting other rubber companies. In the brief filed at Columbus it was brought out that the molds used by Goodrich, and its Miller subsidiary, for the taxable year 1932, were valued at $1,114,340. The disputed amount in the present case is $31,000.

Use of Latex Increasing

The direct shipment of latex from producing to consuming countries has increased from 5,800 tons (equivalent dry content) in 1931 to more than 20,000 tons in 1934, according to the British firm of Zorn and Leigh Hunt, Ltd., London. Latex is being used almost exclusively in the manufacture of new products and in new processes and therefore adds to the world's total consumption, rather than displacing the usage of crude or sheet rubber.

CONSUMPTION IN MARCH IS 1% BELOW FEBRUARY

Consumption of crude rubber by manufacturers in the United States for the month of March amounted to 42,620 long tons, which compares with 43,187 long tons for February, 1935. March consumption shows a decrease of 1.3% under February, 1935 and 9.5% below March, 1934, according to statistics released by the Rubber Manufacturers Association. Consumption for March, 1934 was reported to be 47,097 long tons.

Imports of crude rubber for March were reported to be 44,041 long tons, an increase of 24.5% over the February figure of 35,383 long tons, but was 1.3% under 44,605 long tons imported in March, 1934.

Total domestic stocks of crude rubber on hand March 31st were 338,700 long tons, which compares with February 28th stocks of 339,335 long tons and 352,897 long tons on hand March 31, 1934.

The participants in the statistical compilation report 44,485 long tons of crude rubber afloat for the United States ports on March 31st, compared with 42,969 long tons afloat on February 28, 1935 and 54,722 long tons afloat on March 31, 1934.

March reclaimed rubber consumption is estimated to be 9,741 long tons; production 10,549 long tons; and stocks on hand, March 31, 1935, 20,637 long tons.

TIRE SHIPMENTS DROP 10.2% BELOW JANUARY

Shipments of pneumatic casings for the month of February, 1935 amounted to 3,287,394 casings, a decrease of 10.2% under January, 1935 and practically no change as compared with February, 1934, according to statistics released by the Rubber Manufacturers Association.

Production of pneumatic casings for February, 1935 were 4,382,663 casings, a decrease of 5.3% under January, 1935, but was 1.1% above February, 1934.

Pneumatic casings in the hands of manufacturers, February 28, 1935, amounted to 11,529,561 units, an increase of 10.9% above stocks on hand January 31, 1935 and 7.5% over stocks on hand February 28, 1934.

The actual figures are as follows:

PNEUMATIC CASINGS

	Shipments	*Production*	*Inventory*
Feb., 1935	3,287,394	4,382,663	11,529,561
Jan., 1935	3,662,615	4,626,473	10,397,667
Feb., 1934	3,284,910	4,335,092	10,725,033

General Atlas Issues Folder

An attractive two-color mailing piece was distributed last month by the General Atlas Carbon Company, New York, manufacturers of Gastex Carbon Black for the rubber industry. The folder effectively draws a comparison in the marked progress that has been made in water-proof footwear since 1920, and contains mention of the advantages of Gastex blacks.

Form Sparr Rubber Company

The Sparr Rubber Mat Company has been formed at Shreve, Ohio, and has already started production on a varied line of rubber mats for home and industrial use. The concern is headed by Ralph Sparr as general manager.

STRIKE THREAT REMOVED PENDING COURT'S REPORT

The strike threat which hovered over the Akron factories of Goodyear, Goodrich and Firestone, was definitely postponed after the signing of a four-clause pact, by rubber and labor executives involved in the dispute, on April 13, the result of a series of conferences between the combatants and Secretary of Labor Perkins at Washington.

According to the terms of the pact the rubber companies will meet with the chosen representatives of any group of employees on matters of mutual interest, and will post notices on their bulletin boards of any decisions reached by such negotiations. Both companies and labor unions agree to postpone the holding of an election as ordered by the National Labor Relations Board until final decision has been reached in the case now pending in the courts, and any subsequent appeals, with the unions further agreeing that there shall be no strike or lockout or discrimination pending such final decision. Only Goodrich and Firestone are involved in the court argument with regard to employee elections.

This pact received approval from the Goodyear, Goodrich and Firestone union locals, all three of which had cast strike ballots several days before the intervention of Miss Perkins, at meetings held on Sunday, April 14. Several days thereafter labor committees reported satisfactory conferences with the three company managements, as per the pact's clause concerning employer-employee meetings.

On April 15, two days after the signing of the "peace pact" the United States Circuit Court of Appeals, at Cincinnati, held a hearing to determine the right of the National Labor Relations Board to order elections in the Goodrich and Firestone factories by secret ballot regarding employee representation. The Board ordered such elections last December, and Goodrich and Firestone immediately filed an appeal with the Cincinnati court protesting the right of the Board in this connection. The so-termed "company unions" of both tire companies, also filed appeals with the court protesting the Board's action.

Three questions are involved in this dispute: the constitutionality of Section 7-A as it affects manufacturing companies; the constitutionality of Public Resolution 44 which gave the President power to create the National Labor Relations Board; and the jurisdiction of the Board under powers given it. Goodrich and Firestone attorneys argued that the manufacturing of tires does not involve interstate commerce and cannot be subject to legislation by Congress. They further contended that public interest is not involved and that constitutional rights of the companies are abrogated. Department of Justice attorneys, representing the Labor Board, asserted majority rule was not involved and attacked the policy of Goodrich and Firestone in paying salaries to officials of their "company unions."

Three judges heard the arguments presented and are expected to render a decision late in May or early in June. It is a certainty that irrespective of the decision the case will be carried on appeal to the higher courts and a final decision will not be rendered for about two years.

Another angle in the labor disputes at Akron is the attempt made by the Firestone union local to remove the "blue eagle" from that company. Several months ago the local petitioned the Regional Labor Board to remove the "blue eagle" on the grounds that Firestone had violated Section 7-A by interference with its employee organization, the Employes' Conference Plan. On March 30, the National Labor Relations Board rendered a decision substantiating that claim and giving Firestone six days to comply with the decision. Firestone immediately petitioned the court for an injunction against this order.

On April 17, Justice Jennings Bailey, of the District of Columbia Supreme Court, issued a temporary injunction restraining the Labor Board from enforcing a threatened "blue eagle boycott" against Firestone. He refused, however, to issue an injunction against the Board to restrain it from interfering in the labor dispute between Firestone and its employees. Although the Labor Board formally asked the NRA to remove the "blue eagle" from Firestone on April 19, the latter cannot take any action until the hearing on a permanent injunction, which was scheduled for May 10.

Postpone RMA Hearing Date

The filing of an answer by the Rubber Manufacturers Association, New York, to charges of price fixing and other unfair competitive methods in connection with the sale of rubber hose, in its position as Code Authority, was postponed from April 28 to May 28. These charges were to have been debated at a hearing scheduled at Washington for May 10, but the hearing date has also been postponed to June 10.

Frazier Rubber Leases Plant

The Frazier Rubber Products Corporation, of Sebring, Ohio, has leased a rubber factory in Carey, Ohio. Plans call for early occupation of the new factory and early production activities. The Carey plant will be in charge of Mr. M. Howard, of Akron.

FILE CHARGES AGAINST ARMSTRONG RUBBER CO.

Charging unfair competition in the advertising and pricing of automobile tires and tubes, the Federal Trade Commission filed a complaint against the Armstrong Rubber Company, of West Haven, Connecticut, on April 22. According to the complaint Armstrong distributors received goods at prices shown on a "confidential distributors' net cost" list, but retailed them at higher prices described as "factory prices" which were also listed and furnished by the company.

Although Armstrong furnished the dealer with a retail price list the agreement between company and dealer, described in the complaint, provided that the dealer carry Armstrong goods on consignment and sell them "at the best price obtainable over and above the consigned price."

The complaint shows that the confidential net cost list of prices to dealers was substantially lower throughout than the "direct factory price list" as quoted to retail purchasers. For instance, a tire priced to a dealer at $6.15 was marked for the public at a "factory price" of $8.45. Tubes were sold on a like scale.

Declare Tire Price Truce

Following a series of conferences between A. L. Viles, president of the Rubber Manufacturers Association, and executives of leading mail order houses, a truce has been declared on tire prices, featuring the abolition of special discounts introduced by the mail order concerns in connection with their Spring sales. Tire manufacturers were combatting these special discounts by permitting dealers in the larger cities to quote lower prices.

SEIBERLING TUBE SUBJECTED TO "TORTURE" TEST

In a test determined to prove how many punctures are required to make a tire equipped with the recently-introduced Seiberling Sealed-Air Tube go flat, engineers of the Seiberling Rubber Company, Akron, prepared a "torture road," pictured above, composed of a sea of pointed spikes. A car equipped with these tubes was driven back and forth across this "road" for a solid day, a total of 2,498 nails being picked up by the tires in that period. For three successive days the car was driven around normally, with the nails allowed to remain in the tires. At the end of this three-day period the nails were removed, although none of the tires had gone flat. Seiberling engineers credit this performance to the Sealed-Air Tubes in which soft, plastic gum is held in place by partitions of cured rubber. These partitions divide the tread of the tube into compartments, similar to the bulkheads of a battleship. When a nail, or other sharp instrument, pierces the tube and is later withdrawn, the plastic gum fuses together, sealing the hole automatically.

Financial News

CALIFORNIA GOODYEAR DECLARES DIVIDENDS

Marking the first disbursement since April 1, 1932, directors of Goodyear Tire and Rubber Company of California, Inc., have declared two dividends of 50 cents each on the company's 7 per cent cumulative, $100 par value stock. The first dividend was payable May 1 to stock of record April 25, and the second is payable July 1 to stock of record June 21.

The California company recently reported for the year 1934 net profits of $130,746, after charges and federal taxes, equal to $1.65 a share on 79,116 shares of preferred stock on which accrued dividends amounting to 19¼ per cent. were covered. For the year 1933 the California branch reported a net loss of $300,432.

The following officers were elected at the annual board meeting: Paul W. Litchfield, board chairman and president; H. J. Young, vice-president and comptroller; W. H. Fleming, vice-president; J. S. Willaman, treasurer; J. L. Goodard, secretary; and R. E. Fulton, assistant-secretary. All of the directors were re-elected.

FIRESTONE CO. FILES CAPITAL STOCK ISSUE

The Firestone Tire & Rubber Company, Akron, filed a $78,500,000 capital stock issue with the Securities and Exchange Commission for registration on the New York Stock Exchange on April 26. The issue is one of the largest yet filed with the Commission for registration, and calls for 564,000 shares of 6 per cent cumulative preferred stock, Series A, $100 par value, issued, and 2,250,000 shares of $10 par value common stock issued.

Quarterly Profit for Fisk

Fisk Rubber Corporation, Chicopee Falls, Massachusetts, and subsidiaries, report a net profit of $42,745, after charges and Federal taxes, for the quarter ended March 31, 1935. This is equal to $1.17 per share on 36,579 shares of 6 per cent preferred outstanding stock. In the first quarter of 1934 the company reported a net profit of $120,287, equal to 15c a share on 423,405 common shares, after estimating preferred dividend requirements. Fisk had a net profit of $728,696 for the year of 1934.

Denman Tire Has Loss

Denman Tire & Rubber Company, Warren, Ohio, reports a net loss of $100,281 after expenses and other charges for the year of 1934. In 1933 the company had a net loss of $8,153.

1934 Profit for Kleinert

I. B. Kleinert Rubber Company, College Point, Long Island, New York, reports a net profit of $263,128 for the year ending December 31, 1934, including $224,119 net proceeds of life insurance policies and after deducting taxes and charges. This profit is equal to $1.51 a share on 174,139 shares of capital stock. In the previous year the company had a net profit of $69,718 which was equal to 38c per share on the 181,539 shares then outstanding.

Thermoid Has Quarterly Profit

A net profit of $77,913, after interest, depreciation and Federal taxes were deducted, for the quarter ended March 31, 1935, is reported by the Thermoid Company, Trenton, N. J., and wholly owned subsidiaries. After quarterly dividend requirements on the 7 per cent preferred stock, this is equal to 10c a share on 253,756 $1.00 par common shares outstanding on December 31, 1934. There is an accumulation of unpaid dividends on the 7% preferred stock.

Increased Profit for Dunlop

Dunlop Rubber Company, Ltd., Fort Dunlop, Birmingham, England, reported a net profit before taxes of £1,687,687 for the year of 1934 as compared with a net profit of £1,512,866 in the previous fiscal year.

Loss for Okonite Company

A net loss after depreciation, interest, income tax provision and other deductions, amounting to $68,183, has been reported by the Okonite Company, Passaic, New Jersey. This compares with a loss of $157,741 reported in the previous year ending December 31, 1933.

CARBON BLACK AFFECTED BY GAS WASTAGE BILL

A bill which will affect the manufacture of carbon black and increase its cost and which is also expected to drive several carbon black plants from the Panhandle section of Texas, was signed by the Governor of Texas on May 1. The bill, known as the Gas Wastage Bill, in brief provides:

1. That the popping off of gas either at the well or as residue from a natural gasoline plant is strictly prohibited. 2. The Railroad Commission is assigned the duty of ascertaining the market outlet of both sweet and sour gas and to allocate that market among the producing wells on a reasonable basis. 3. The use of sweet gas is limited to light and fuel, gas lift, chemical manufacturing purposes other than carbon black, and repressuring. 4. Sour gas may be used for any of the purposes for which sweet gas may be used and in addition thereto it may be burned for carbon black after being stripped of its natural gasoline. 5. Casinghead gas or gas from oil wells produced along with the oil may be used for any of the purposes for which sour gas is used, regardless of whether said casinghead gas be sweet or sour.

A strenuous fight was made by a number of carbon black companies to permit the use of sweet gas for the manufacture of carbon black but the Legislature rejected this proposal on the ground that there were in the Panhandle over 350,000 acres of land productive of sour gas which the gas pipe lines could not use for their purposes and that the owners of these lands were entitled to the market for carbon black—which, it is claimed, can use sour gas to as good advantage as sweet gas.

An additional source of annoyance to carbon black producers in Texas is the liklihood of a levy on each pound of black produced in Texas—a movement which is being agitated in some quarters as a new source of income for the State.

TRENTON NEWS

Harry Klag, trustee in bankruptcy, has wound up the affairs of the former Zee Zee Rubber Company, Yardville, N. J., after fourteen years. All wage claimants were paid in full, while the general creditors received little. Stockholders and bondholders received nothing. The concern was organized by William and Irving Zimmerman, brothers, as the Zee Zee Rubber Company. When the concern failed the plant was sold to the Spartan Rubber Company for $58,000. The Thiokol Corp. now operates the plant.

Holders of part of a $2,500,000 note issue have filed four suits against the Thermoid Company, Trenton, seeking to enforce a gold clause in the provisions for repayment. The claimants each hold $3,000 of the notes, an issue of February, 1929. The suits cite a clause in the notes which states that the principal and interest will be paid "in gold coin of the United States of America of or equal to the standard of weight and fineness existing on February 1, 1929." The suits have been filed in the New Jersey Supreme Court.

The Nearpara Rubber Company, Trenton, suffered a heavy loss by fire on April 24. The blaze started in a drying room and caused the night shift to flee. The flames spread rapidly and gave the firemen a battle for more than two hours. Considerable reclaimed rubber was burned. The plant was established many years ago by the late Hyman A. Rosenthal and is now controlled by his sons, Nathan and Benjamin M. Firemen used water from the tanks of the Pocono Rubber Company, situated a few hundred feet away.

The Lambertville Rubber Company, Lambertville, has reopened its plant after having been closed for a few weeks. The company announces that it expects to continue running throughout the summer.

Joseph Stokes Rubber Company, Trenton, is erecting a new shipping room and office addition at its plant in Welland, Ontario, Canada. The old shipping department will be used for manufacturing purposes.

Damages amounting to $10,000 have been awarded to Frederick B. Williamson, Jr., Elizabeth, N. J., president of the Whitehead Brothers Rubber Company, Trenton, for injuries received two years ago in an automobile collision near Trenton.

Mrs. Sylvia A. Solliday, formerly of Trenton, died April 15 at her home in Atlantic City following a lengthy illness. She was 75 years old. Mrs. Soliday, who is survived by a son, was formerly affiliated with the New Jersey Rubber Co., Lambertville, N. J., of which her husband was also an official. Burial was at Beverly, N. J.

NEW YORK RUBBER GROUP PLANS PICNIC IN JUNE

The annual Summer Picnic and Outing of the New York Rubber Group will be held on Saturday, June 15, at Alps Castle, Alps Road, Preakness, Paterson, New Jersey. Activities are scheduled to start at 9 o'clock in the morning, concluding with a dinner served at 4 P. M. The Alps Castle grounds are easily accessible, Highway 23 from Newark leading straight to the spot. For New Yorkers, it is suggested that they make connnections with Highway 4 on the New Jersey side of the George Washington Bridge. Arrangements are also being made to meet several trains at Paterson, N. J., for those arriving by train, either on Erie or Lackawanna lines.

The tentative program for various games and activities, and the men in charge of each, together with their company connections, includes the following: soft ball, Fred Conover (Manhattan Rubber); golf, K. Soule (Manhattan Rubber); boochie, an Italian bowling game, M. R. Buffington (Lea Fabrics); tennis, J. M. Ball (Vanderbilt); and swimming in an available pool. C. A. Bartle (DuPont) has been designated master of ceremonies.

At 3:30 P. M. a four-round boxing match between two fast lightweights will be held. W. C. Lingvall (U. S. Rubber) is in charge of arrangements for the match, while "Butch" Hamister (Naugatuck Chemical) will act as referee. Following the boxing match dinner will be served, at the conclusion of which various prizes will be awarded to the game contestants, and a special door prize also given.

Beer, frankfurters, sandwiches, pretzels, etc., will be served all day long without stint. Members participating in the golf tournament will be expected to pay a green fee of $1.50 as an extra charge. Tickets to the combined picnic-outing will sell at $2.50 each. J. Miscall, of the Flintkote Company, East Rutherford, New Jersey, is chairman of the Picnic Committee.

Tickets may be secured from the Chairman or from any of the committee members, and are also available from THE RUBBER AGE.

Rhode Island Group Meets

The Rhode Island Rubber Club held a meeting featured by a smoker and buffet supper at the Bristol (R. I.) plant of the U. S. Rubber Products, Inc., on April 11. After the supper a short social period was held during which four boxing matches of three or four rounds each were put on, the winners receiving wrist watches and the losers bill folds. Following the boxing matches a door prize was drawn, which turned out to be a live goat. The latter part of the evening was devoted to a variety vaudeville program. The group plans a meeting sometime in June at which election of officers will be held.

Speakers Address Chicago Group

The Spring meeting of the Chicago Rubber Group was scheduled to be held on May 10 at the College Inn of the Hotel Sherman, in Chicago. Two speakers were on the program, these being H. A. Winkelmann, Marbo Products Corporation, who was to have discussed "New Developments in Rubber Research," and J. C. Nichols, well-known amateur hunter, whose topic was to be "Hunting Whales and Animals in Alaska." The latter address was to be illustrated with motion pictures of action scenes taken in the frozen north.

New London Rubber Exchange

Architect's Drawing of Exchange

On March 27 the foundation stone for the new London (England) Rubber Exchange was laid amid gala pomp and ceremony. The new exchange will be known as Plantation House, Ltd., and will be located on Fenchurch Street in London. When completed, the new building will be the second largest in the city. In addition to housing the rubber exchange sections will be devoted to tea sales rooms, and other commodities. It is planned to be the center of all the Mincing Lane trades. The foundation stone was laid by the Lord Mayor of London.

Akron Group Elects Officers

More than 190 members and guests attended the Spring meeting of the Akron Rubber Group on April 12, held at the Akron City Club. W. B. Wiegand, director of research, Binney & Smith Company, was the only speaker on the program. He delivered an informal address on his recent trip to the Far East, illustrating his talk with interesting slides and motion pictures taken on the trip. H. A. Hoffman, secretary of the group, reported a good financial standing, and commented on the record attendance achieved during the past year. Following a brief business session the following officers were elected to serve for one year: A. Brill, Republic Rubber Company, president; Enos Baker, Binney & Smith Company, vice-president; and G. Lloyd Allison, B. F. Goodrich Company, secretary-treasurer.

Boston Group to Meet

The Boston Rubber Group, of which W. J. R. Hauser, of the Heveatex Corporation, is secretary-treasurer, will hold its Spring meeting on May 17 at the University Club 40 Trinity Place, Boston. A dinner will precede the evening's program, starting at 6:30 P. M. As reported in our previous issue two speakers are scheduled to deliver addresses, these being C. E. Maynard, factory manager of the Fisk Rubber Corporation, who will discuss "Machine and Process Development," and Peter P. Pinto, general manager of THE RUBBER AGE, who will deliver a lecture on "Strange Patents." Tickets for the meetings are $1.25 to members and $1.50 to other guests. They may be secured from Mr. Hauser.

NEW RUBBER NOVELTIES DISPLAYED AT TOY FAIR

More than 50,000 toys, games and novelties were on exhibition at the 1935 Toy Fair, held from April 1 to 20, inclusive, at the hotel McAlpin and the Toy Center, 200 Fifth Avenue, New York City, under the auspices of the Toy Manufacturers of the U.S.A. Included among the displays at the McAlpin were several featuring new rubber novelties introduced by leading rubber manufacturers, including the following:

Seiberling Latex Products Company, Barberton, Ohio—exhibited a complete line of stand-up type rubber dolls with movable heads, infant gift sets, Mickey Mouse sponge rubber play balls, miniature all-rubber Ford V-8 models, and the recently introduced Mickey Mouse hot water bottles. A new novelty was an all-rubber Pluto the Pup, another Disney character. Other items on view in the Seiberling display rooms were the 3 Little Pigs, inflatable dolls, and a line of rubber household novelties such as fly swatters, screw-cap openers, etc. The display was in charge of C. W. Simpson, New York manager.

Sun Rubber Company, Barberton, Ohio—displayed a varied line of infant goods including teething rings and gift sets. New numbers included dog, cat and bear novelties, a chocolate-coated inflated doll, a miniature Chrysler Airflow auto, miniature hot water bottles, and various sizes of quintuplet doll sets in baskets, each doll having a miniature nursing bottle. A varied line of rubber dolls was also on exhibit ranging from the "standing" to the "jointed" types featured by the company. Other novelties displayed included Sunruco Plant Sprayers and Clothes Sprinklers, Handi-San rubber nursing bottle caps, Quick Seal bottle stoppers and Sunruco Plate Scrapers.

Schavoir Rubber Company, Springdale, Conn.—featured a line of blown rubber goods, especially the recently-introduced grotesque figures emulating fairy-book characters, such as Puss-in Boots, Old King Cole, the Cat and the Fiddle, etc. Also displayed a line of rubber balls made by a new process to ensure hardness in inflated goods.

Rubber Specialties Company, Inc., Conshohocken, Penna.—had on display its line of "Build-O-Brick" construction sets consisting of interlocking bricks of rubber which form various shaped buildings, garages, hangars, etc. Also exhibited the Ruspco Acrobatic Spelling Clowns which may be joined together in acrobatic postures spelling out words at the same time. Rubber circus figures were also on display at this exhibit.

Pennsylvania Rubber Company, Inc., Jeannette, Penna.—displayed its complete line of rubber play balls, plain, striped and variously decorated, featuring two new numbers, one a Scotty ball, the other Circus balls, the latter being gaily decorated with circus figures, such as clowns, elephants, donkeys, etc. Tennis balls were also shown.

These were the major rubber exhibitions on view at the McAlpin. A few others were to be seen at the Toy Center, in addition to dozens of toys which incorporated rubber in their construction.

Will Handle Sales Direct

The sales staff of the John Waldron Corporation, New Brunswick, New Jersey, as of July 15, will handle the sales of that company direct. Heretofore sales were handled through the firm of Smith and Serrell, Newark, N. J., who functioned as general sales agents.

OBITUARIES

Thomas C. Marshall

Thomas C. "Tim" Marshall, formerly vice-president and general manager of the Kelly-Springfield Tire Company, died at the age of 59 at St. Thomas Hospital, Akron, Ohio, from injuries resulting from a fall in his home, on April 19. He had been in declining health for some time. Born in Akron in 1876 Mr. Marshall was educated in local schools and received his early rubber training with both the Goodyear and Goodrich Companies. In 1901 he joined Kelly-Springfield and remained with that company for 25 years, resigning in 1926. While with the company he opened the $16,000,000 factory at Cumberland, Maryland, and managed it for several years. With the exception of the years spent in Cumberland, he spent his entire life in Akron. In 1908 he became known in political circles and was elected Councilman of the Third (Akron) Ward, serving for four years. In 1931 he was a candidate for council in the August primaries. At the time of his death Mr. Marshall was president of Marshall Sons Fuel, Inc. Burial was held on April 23 at Holy Cross Cemetery, Akron. He leaves a widow, six sons, and six daughters.

Henry Francis Wanning

Henry Francis Wanning, 89, a director of Farrel-Birmingham, Inc., Ansonia, Conn., manufacturers of rubber mill machinery, and identified with the iron foundry and rubber machinery industry in the Naugatuck Valley for more than 62 years, died April 28 at his home in Shelton of injuries sustained the previous week in an automobile accident. Mr. Wanning, a descendant of early colonial stock, was born in Webster, Mass., in 1846. At an early age he joined the New York Steel Company in New York City and in 1865 moved to Derby, Conn., then known as Birmingham, entering the service of the Birmingham Iron Foundry as a bookkeeper. He was promoted to secretary-treasurer, vice-president, and in 1890 to the presidency, holding the latter post for 40 years. In 1928 the company was merged with the Farrel Foundry & Machine Co. of Ansonia under the consolidated name of Farrel-Birmingham, Inc., and Mr. Wanning became a director. He was active in banking and club circles and took an interest in Shelton politics.

James A. Donohoe

James A. Donohoe, credit manager for the Canfield Rubber Company, Bridgeport, Conn., died April 27 after a brief illness. He is survived by his widow, two sons and a sister.

Ross M. Trump

Ross M. Trump, secretary-treasurer of the Trump Products Company, Akron, died presumably by his own hand, at his home, 318 High Street, Wadsworth, Ohio, on April 11. In October, 1919, Mr. Trump was instrumental in organizing the Excel Rubber Company, at Wadsworth. After a brief period of operation the company went into receivership in 1922. Shortly thereafter he organized the Trump Brothers Company, together with his brother, which later became known as the Trump Products Company. Last August the company entered suit against seven rubber manufacturers alleging conspiracy to ruin its business and seeking $100,000 in damages. This suit has not yet been heard. Funeral services were held on April 13. He leaves a widow, a son, and a daughter.

Thomas R. Burton

Thomas R. Burton, formerly identified with the U. S. Rubber Company, for more than twenty years, died on April 19 in Grand Rapids, Michigan, at the home of a sister. His work was mostly in the field, serving as manager of both the Pittsburgh and Boston branches at one time. He also served as assistant manager of the Eastern section, as well as other sectional territories. He severed connections with the company about three years ago when the executive offices were transferred from Detroit to New York, and had been inactive since.

William A. Vail

William A. Vail, president of the Vail Rubber Works, St. Joseph, Michigan, died suddenly April 11th at his home in St. Joseph. Mr. Vail was 75 years old and had been actively engaged in the rubber roll covering business for forty years. Surviving him are two daughters and six grand-children.

FORM NEW COMMITTEES ON KELLY-SPRINGFIELD

The affairs of the Kelly-Springfield Tire Company, which has been beset with stockholders' suits seeking reorganization and receivership, are now in the hands of two trustees, these being Edmund S. Burke, former president, and Thomas B. Finan, of Cumberland, Maryland. The trustees were appointed by the court shortly after proceedings for reorganization of the company, under Section 77B of the Bankruptcy Act, were filed in the United States District Court at Baltimore. All executive divisions of Kelly-Springfield have been removed to the Cumberland factory, with the exception of the export department which is still located in New York.

Two new committees were formed last month to protect the interests of stockholders and bond holders. One committee, formed under a deposit agreement, is comprised of Hugh C. McCarthy and John Dreir, both of the New York Stock Exchange, and Raymond B. Hudson, of the Sun Life Insurance Company. Additional nominees will be added later. Mr. McCarthy may be reached at 28 East 55th Street, New York City.

This committee has formulated a plan of reorganization which provides for $1,000,000 of new money, and contemplates revisions in the capital structure and executive management. The plan also provides for the payment of a considerable amount of cash to noteholders as well as provision for adequate preservation of the rights and interests of stockholders.

The second committee mentioned was formed to protect holders of Kelly-Springfield ten-year 6% subordinate notes, due April 1, 1942. It consists of W. B. Stratton, as chairman; George Peabody, former Kelly-Springfield director; and William P. Dunn, Jr., vice-president of the Manufacturers Trust Company, New York. The secretary of this group is John M. Sheffey, 60 Wall Street, New York.

NEW ENGLAND

Operations of A. G. Spalding & Bro., in its plants at Chicopee and Willimansett, Mass., are running well ahead of a year ago, with about 1,100 hands employed as compared to about 850 at this time in 1934. The jump in production is accounted for by increased dealer orders and heavier summer sales estimates based on increases noted in the South and on the Pacific Coast this winter. In line with its policy of improving its merchandise annually, the company has toughened the covers of its two most popular high-grade golf balls, for greater durability. Substantial increases in demand for both golf and tennis balls is expected this summer.

The U. S. Supervisors' Club of U. S. Rubber Products, Inc., Naugatuck, Conn., staged an entertainment and dance April 23 for executives and department heads of the company's rubber footwear plants. More than 100 attended.

Damages of $24,410.65 have been awarded the National Carbon Company, New York City, in its Federal court action against The Zapon Company, Stamford, Conn., charging infringement of patent rights. The decision was handed down April 30 by Judge Carroll C. Hincks of the U. S. District Court at New Haven. Richards & Company, Stamford, with which the Zapon company is affiliated, was also a defendant in the action.

The plaintiff alleged that the defendants had infringed upon its patent rights by using a patented process for an improvement in absorptive carbon and of the process in making it. The process involved collection of solvents from escaping gases given out in the manufacture of artificial leather.

The Stamford companies offered no defense against the allegations themselves, but protested the amount of damages sought, claiming they were excessive and beyond reason. They said they had obtained little profit from the use of the process. Judge Hincks studied the profit and loss statements of the Richards and Zapon companies and ruled that the sum of $24,410.65 was a fair award on the basis of advantages obtained from the process.

Form United Carbon Subsidiary

United Carbon Company, Charleston, West Virginia, has formed a new subsidiary under the name of United Carbon, Inc., for the purpose of facilitating management and operation of the company's carbon black plants in Louisiana, Texas, Oklahoma, Utah and Montana. The plants were formerly under the individual management of subsidiary and affiliated companies, according to Oscar Nelson, president.

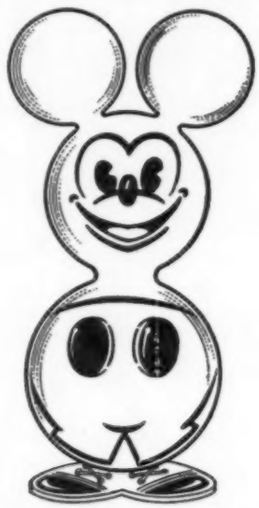
Establish Nieuwland Fund

The Julius A. Nieuwland Fund for Chemistry has been established at Notre Dame, South Bend, Indiana, through a gift of $10,000 from Francis P. Garvan, president of the Chemical Foundation. The establishment of the fund was announced by Father John F. O'Hara, president of Notre Dame, during a meeting at the Hotel McAlpin of the Notre Dame Club of New York on April 29.

New Rubber Goods

Mickey Mouse Toss-up Balloon

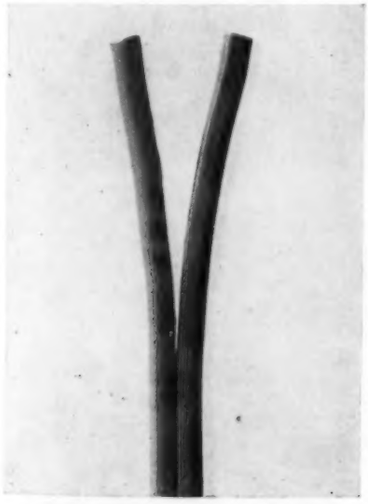
One of the new rubber balloons being produced by the Oak Rubber Company, Ravenna, Ohio, under exclusive license



from the Walt Disney Enterprises (Kay Kamen, Inc.) is a large Mickey Mouse toss-up balloon. This balloon inflates to about 30 inches high overall. The body, head and ears all inflate, as indicated by the illustration herewith. When inflated the novelty stands on heavy cardboard feet. Each Mickey Mouse toss-up balloon is packed in a colorful transparent-window envelope.

G-E All-Rubber Cord

A newly designed type of all-rubber parallel lamp cord has been announced by the General Electric Company's Merchandise Department, Bridgeport, Conn. Designated as type PO-SJ "Special," the new cord is unusual in that both copper conductors are insulated simultaneously with at least a 1/32-inch wall of high-grade rubber, which affords good insulation and abrasion characteristics and, in addition, permits easy separation of the individual conductor for assembly purposes. The cord has been especially styled to present an attractive appearance. It has a series of longitudinal ridges in its outer surface, an exclusive G-E feature, and is available in four standard colors: brown, ivory, black and olive. The cord carries Underwriters' Laboratories bracelet labels every five feet.



U. S. Spun Latex Golf Balls

Made possible by what is said to be a new process the U. S. Rubber Company, New York, has introduced the Spun Latex U. S. Royal Golf Ball. The new process lies in the "high-power" winding of thread spun from latex. Machines wind the spun latex about a new paste center at high tension. The cover of the ball is made from a material called Tjipetir (pronounced chee-pet-ear) imported from Java which has a surface that takes a long-lasting finish.

Coupling Uses Rubber Bushings

An improved flexible coupling has been brought out by the F. A. B. Manufacturing Company, Oakland, California,

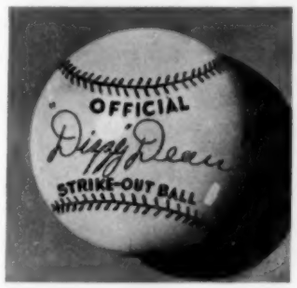
which makes use of metal links with rubber bushings. It is being featured under the name of Fabco Type R Flexible Coupling. Its construction consists of two flanges joined together by alternate pins which are connected to opposite ends of rubber bushed metal links. An oval shaped hole is molded in the center of each rubber bushing into which the steel pin blocks are inserted. Rubber is used in this connection because of its shock absorbing and resilient properties.

Buck Rogers Rubber Stamp Set

Taking advantage of the growing popularity of "Buck Rogers in the 25th Century," which appears daily in newspaper cartoon strip form, and is broadcasted to thousands of listeners, the Superior Type Company, 3940 Ravenswood Avenue, Chicago, has announced the addition of a Buck Rogers rubber stamp set to its "Stamperkraft" line.

Barr Dizzy Dean Baseballs

The Barr Rubber Products Company, Sandusky, Ohio, is manufacturing a line of rubber baseballs, sponge and gas inflated, featuring the signature of Dizzy



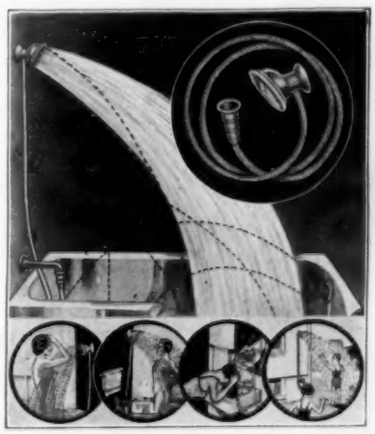
Dean, famous pitcher of the St. Louis Cardinals. The rubber balls are being offered in several sizes and finishes, both with printed and embossed stitching. The company is also featuring a line of Tarzan rubber balls in larger sizes imprinted with both the Tarzan name and picture. Smaller balls carry just the name in large, red letters. The company reports excellent sales in both the toy and premium fields.

Simplex "Hexacord" Wiring

Simplex Wire and Cable Company, Boston, Mass., has announced the introduction of Hexacord, a new, twin parallel, rubber sheathed lamp cord suitable for electric lamps, clocks, fans, etc. It is made in two conductor type only. Each insulated conductor is hexagonal in shape. The two are securely joined together but may be easily separated, leaving each with its complete insulation.

Shower Uses Grip Suction Cup

A new type portable all-purpose shower, which makes use of a powerful rubber grip suction cup, a decided improvement over the model introduced last year, has just been brought out by the Stanley-Oliver Mfg. Company, 564 West Randolph Street, Chicago. In former models the shower head, which is adjustable, was of the regular metal type. The new models, however, are



made completely of rubber, even the shower head being rubber-covered. The suction cup permits the shower to be attached to any smooth surface. A spe-

cial faucet connection readily fits various size and shaped water faucets. The water spray may be directed in any desired direction. The new model is being merchandised under the trade name of the E-Z-Tach Portable All-Purpose Shower, and retails at $1.19 each.

Goodrich Silvertown Wheel

A pneumatic tire specially designed for wagon wheel service on retail delivery wagons, under the trade name of the Silvertown Wagon Wheel, has been

introduced by the B. F. Goodrich Company, Akron. Tread and sidewall of the new tire have been designed to give maximum resistance to wear and to resist deterioration caused by long exposure to varied weather conditions. Tread design is shallow since deep treads tend to pick up and hold small stones on gravel roads. Several types of standard wheel assemblies have been made available, each a complete unit, which simplifies changeover. Steel disc, wire or malleable iron modified disc wheels may be selected by the user.

Camco Swiss Tie Shoe

For the coming Summer season the Cambridge Rubber Company, Cambridge, Mass., has introduced a new line of Camco Swiss Tie models. One of these, illustrated herewith, is an im-

proved model of the long-wearing mesh style, made with the Vultex process. It is a reinforced "skeleton" in a shadow blazer design, and is available in several sizes for women, children and misses. The company describes them as being "thoroughly smart, cool, and practical."

New Sterilastic Banjits

Increasing acceptance of Sterilastic bandages, made of especially treated sheet crepe rubber, introduced about four years ago, has prompted its manufacturers, Surgical Dressings, Inc., 65 Brookside Avenue, Jamaica Plain, Boston, Mass., to bring out small individual finger bandages called Banjits. These bandages, available in several sizes, consist of a narrow strip of crepe rubber in the center of which is a square of gauze. The gauze section is applied to the finger wound and the bandage then drawn around the finger and sealed by pressing the loose ends down. Sterilastic bandages are made under U. S. Patents No. 1,885,007 and No. 1,885,008.

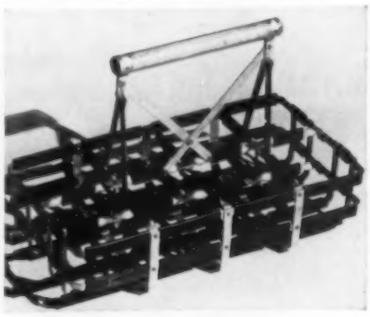
Electric Paint Fluid Hose

Electric Hose & Rubber Company, Wilmington, Delaware, has added a new type of paint fluid hose to its regular line. The

new hose has a tube made of a specially developed compound in which rubber plays a part and possesses all of the strength and flexibility of rubber. It will resist all commercial solvents, according to its manufacturer, and has long life. Electric Paint Fluid Hose is available in any length up to 500 feet.

Noiseless Milk Bottle Carrier

Made of airplane aluminum alloys, a milk bottle carrier, made noiseless by the use of rubber cushions, is now being manufactured by the Quirk Crate Corporation, Cudahy, Wisconsin. Lighter in weight than ordinary carriers due to



the use of the new alloys the new carrier is equipped with soft rubber bumpers on the bottom, each ¾ inch thick. For testing purposes one of these carriers, which holds eight bottles, was dropped 1500 times without breaking a single bottle. The company is also producing rubberized milk crates.

Miller Inflated Tom Mix

One of the latest additions to the line of inflated rubber toy novelties featured by the Miller Rubber Company, of Akron, is a new number depicting the well-known Tom Mix and his equally

famous horse, Tony. As will be noted from the illustration the popular cowboy and movie star is seated astride his horse when the toy is inflated. The novelty is being manufactured exclusively by Miller under arrangement with Tom Mix Products, Inc., of St. Louis, Missouri.

Spalding Chest Protector

An improved model of its inflatable chest protector has been announced by A. G. Spalding & Bros., New York City, under the trade term of No. 6UP Umpires Inflated Body Protector. The feature of the new model is a removable rubber bladder. In the event the bladder is punctured it may be repaired by vulcanization or re-

placed, depending upon the actual damage done. The new inflatable chest protector is already being used by several big league umpires, according to the company.

Hood Jai Alai Shoe

An improved style of the Jai Alai shoe featured by the Hood Rubber Company, Inc., Watertown, Massachusetts, has been presented to the shoe trade. The new model further stresses the ventilating properties of the shoe. A lower

foxing, plus a well perforated upper and a fabric lining contribute to the cooling quality. The Jai Alai shoe is made from a special fabric known as Bux, with a crepe rubber sole.

Jump-It Rubber Jump Rope

Made of rubber cord a jump rope under the trade name of "Jump-It" has been put on the market, both as a retail sales item and as a premium item, by the Piqua General Supply Company, Piqua, Ohio. The rubber rope is seven feet long, and is equipped with red wooden handles at both

ends, the rope remaining inside the handles by means of a clip attachment. Because of the rubber "Jump-It" will not kink.

Names in the News

DR. M. HARRISON, chief chemist, Miller division, B. F. Goodrich Company, Akron, completed 20 years of service with the company last month. He will receive his 20-year service pin at a ceremony to be held in June.

MARTIN J. NEWMAN has been appointed vice-president of Rubber Displays, Inc., Chicago, makers of a line of rubber mannequins for display purposes and animated display forms.

PAUL W. LITCHFIELD, president, Goodyear Tire & Rubber Company, Akron, sailed from California on April 20 for Honolulu, the first stop on a trip around the world. He plans to inspect the company's plantations and factories in various countries.

C. W. HALLIGAN, assistant-secretary, Rubber Manufacturers Association, New York, delivered an address before members of the Cleveland and Akron chapters of the National Association of Cost Accountants at a dinner-meeting held in Cleveland on April 18.

OLIVER F. REDD, formerly associated with the Western Electric Company, has joined the research division of the Patterson Foundry & Machine Company, East Liverpool, Ohio, manufacturers of rubber machinery.

R. A. BOYER, managing director of the Goodrich interests in France, was in Akron last month conferring with Goodrich officials concerning problems of the French factory.

DR. D. M. MCDONALD, medical director, Firestone Tire & Rubber Company, Akron, received a $250 award and a 25-year service pin from President John W. Thomas on April 24.

C. E. WONDER, purchasing agent of Van Cleef Brothers, Chicago, has been elected to the board of governors of the Purchasing Agents Association of Chicago.

DR. H. L. TRUMBULL, manager of chemical research for the B. F. Goodrich Company, Akron, reviews more than 250 new patents and publications on rubber chemistry which appeared during 1934 in a paper just published by the National Research Council. The paper is part of the Council's "Annual Survey of American Chemistry."

HARVEY S. FIRESTONE, Jr. returned to Akron on April 20 from a four-month trip to Liberia where he inspected the Firestone plantations and tapped the first trees. He predicted early rubber shipments from Liberia where 10,000,000 trees are being cultivated.

DR. DAVID SPENCE, well-known rubber chemist, formerly associated with the Continental Rubber Company, visited various Akron rubber factories in mid-April before attending the American Chemical Society meetings in New York.

F. W. THOMAS has joined the staff of the John Waldron Corporation, New Brunswick, N. J. as general sales manager of the Francke Coupling and Silent Gear departments. He was formerly associated with the Bartlett Hayward Company.

M. E. LERNER, Managing Editor of THE RUBBER AGE, passed out the cigars on May 7, the occasion being the birth of a six-pound daughter to Mrs. LERNER. Both mother and heiress are reported doing well.

GEORGE W. JARGSTORFF, formerly in charge of rubber and plastics research for C. K. Williams & Company, Easton, Penna., has resigned from that organization. His new connection will be announced soon.

S. C. STILLWAGON has been transferred from the U. S. Rubber Company to a position with the Naugatuck Chemical Company, a subsidiary.

GEORGE FLINT, assistant secretary of the Rubber Manufacturers Association, has recovered from the effects of an appendectomy performed on March 13. He returned to his duties on April 29.

N. W. ADSIT has been elected treasurer of the New Jersey Zinc Company, New York, succeeding the late HENRY S. WARDNER.

W. G. KEARNEY, assistant manager, truck and bus tire sales division, B. F. Goodrich Company, Akron, has been made a "colonel" of Kentucky by GOVERNOR RUBY LAFFOON of that state.

H. S. KARCH, recently appointed chief chemist of the India Tire Company, was formerly associated with the B. F. Goodrich Company, and not with Goodyear as previously reported in these columns. Prior to joining Goodrich in November, 1927, he was in the employ of the National Carbon Company as a development engineer.

LEE D. TIDBALL, manager, time study and standards, B. F. Goodrich Company, Akron, delivered an address before the American Management Association at a meeting held on April 18 in Cleveland. His topic was the practical use of time and motion study.

RAY W. BROWN, aeronautic tire sales manager, General Tire & Rubber Company, Akron, was elected to the Institute of Aeronautical Sciences, New York, last month. Membership in the Institute is limited to leaders in the aeronautical field.

Roosevelt Heads Titanium Co.

Ralph M. Roosevelt, formerly vice-president of the Eagle-Picher Lead Company, and former president of the American Zinc Institute, was named president and director of the Titanium Pigment Company, New York, at a recent meeting of the board of directors. At the same meeting, W. F. Meredith, Titanium president, was elevated to chairman of the board.

Seiberling Back from Europe

F. A. Seiberling, president, Seiberling Rubber Company, Akron, returned from a cruise of the Mediterranean, landing in New York on April 29. Mr. Seiberling visited the several foreign offices of his company, in addition to making pleasure trips to many countries. He was accompanied by Mrs. Seiberling.

RUSSELL L. COLLEY, development engineer, B. F. Goodrich Company, Akron, spoke on "The Latest Developments in Airplanes and Sky Travel" at a luncheon meeting of the Warren (Ohio) Kiwanis Club on April 11. He made the first flight tests on aircraft de-icers.

N. W. PICKERING, president, Farrel-Birmingham Company, Inc., Ansonia, Connecticut, sailed on the *Britannic* on April 8 for a two-month trip which will include visits to several countries. He is expected to return late in June.

G. A. WADDLE, assistant sales manager, Goodyear Tire & Rubber Company, Akron, was awarded a 20-year service pin last month. He joined Goodyear in 1915 as manager of the dealers' relations division, and was appointed to his present post in 1928.

HARRY H. RABER has been appointed assistant to the general manager of the New York Belting & Packing Company, Passaic, N. J. He has been with the company for the past 15 years.

J. P. SEIBERLING, vice-president, Seiberling Rubber Company, Akron, was scheduled to discuss trends in retailing at the semi-annual meeting of the association of National Advertisers at White Sulphur Springs, West Virginia, which started on May 6.

L. H. RAND, president, Rand Rubber Company, Brooklyn, N. Y., was approved as a member of the Code Authority for the Sanitary and Waterproof Specialties Manufacturing Industry on April 11.

S. H. Clark, Jr., vice-president, Whittaker, Clark & Daniels, Inc., New York, has joined the ranks of the air-minded. He is seen here at the conclusion of a recent round trip from New York to California. Severe winds and dust storms caused several forced landings but Mr. Clark still thinks "it's the only way to travel."

MARKETS

RUBBER—COTTON AND FABRICS—CHEMICALS

NEW YORK, MAY 8, 1935

Crude Rubber

LABOR unrest at Akron during the early part of April held crude rubber prices down, low for the month being reached on April 9, with an 11.25 quotation for spot rubber on the Exchange. Announcement from Washington regarding definite postponement of the impending rubber strike until "final decision" of the right of the National Labor Relations Board to order employee elections in company factories, has been rendered by the courts, resulted in a jump of 35 points in the price from 11.58 on Saturday. April 13 to 11.93, the high for the month, on Monday, April 15. Subsequent speculation forced a slow but steady drop in spot prices in the latter part of April and early May, interspersed with brief rallies, a price of 11.56 being quoted on May 8. Futures reacted in the same manner, with March, 1936 deliveries being quoted about 75 points higher than spot. An early price rise is visualized. Quotations in the outside market, Exchange, London and Singapore, follow:

As of May 8

Plantations—

Ribbed Smoked Sheets—			
Spot	—	@	.11⅝
June	—	@	.11¾
July-Sept.	—	@	.11⅞
First Latex, crepe spot	—	@	.11⅜
Amber Crepe, No. 2	—	@	.10⅜
Amber Crepe, No. 3	—	@	.10⅛
Amber Crepe, No. 4	—	@	.10
Brown Crepe, clean thin	—	@	.10⅛
Brown Crepe, rolled	—	@	.10

Latex—

Liquid Latex, per gal.	.49	@	.50

Paras—

Up-River, fine	—	@	.09¼
Acre Bolivian, fine	—	@	.09½

Balata—

Block, Ciudad	—	@	.33

LONDON MARKET

Standard Smoked Sheets—Buyers—May 8			
May	—	@	5 9/16d
July-Sept.	—	@	5¾d

SINGAPORE MARKET

Standard Smoked Sheets—Sellers—May 8			
May	—	@	5 9/16d
July-Sept.	—	@	5 11/16d

Reclaimed Rubber

Demand for reclaims continues to hold fairly steadily with no changes in prices reported. Scrap collections are light but sufficient for current needs and crude rubber has been stable for the past two months. The only cloud on the horizon at present is the strike in the automobile industry which naturally will affect tire shipments if it is not quickly settled. Quotations follow:

High Tensile

Super-reclaim, black	.08¾	@	.09
High Tensile Red	.07	@	.07¼

Shoe

Unwashed	.06½	@	.06¾
Washed	.08	@	.09

Tube

No. 1 (Floating)	.13	@	—
No. 2 (Compounded)	.07½	@	.07¾

Tires

Black	.05	@	.05¼
Black, selected tires	.05¼	@	.05½
Dark Gray	.06¼	@	.06½
White	.09¼	@	.09½
Truck, Heavy Gravity	.05½	@	.06
Truck, Light Gravity	.06	@	.06¼

Miscellaneous

Mechanical blends	.04¼	@	.04½

Scrap Rubber

Quotations on scrap solid tires, boots and shoes and arctics showed decreases last month with No. 1 tubes up ⅜ to ½ cent. Trading has been quiet with dealers still reluctant to accumulate stocks of scrap rubber at present levels. Quotations follow:

(Prices to Consumers)

Auto tire peelings	ton 17.00	@	19.00
Mixed auto	ton 7.50	@	8.50
Clean solid truck tires	ton 32.00	@	35.00
Boot and shoes	ton 18.00	@	19.50
Arctics, untrimmed	ton 14.00	@	15.50
Inner tubes, No. 1	lb. .07¼	@	.07⅜
Inner tubes, No. 2	lb. .03⅛	@	.03¼
Inner tubes, Red	lb. .02⅜	@	.02½

Cotton

Since our last report cotton prices have been marching upward steadily starting from a low of 11.55 on April 9, touching 12.00 on the 15th, and reaching a high of 12.30 on May 4 for spot for the first time since March 9. Favorable factors resulting in this price advance, which was also reflected in futures, included the Government's action in raising the value of silver, improvement of the crop outlook as the result of much needed rain in hitherto dry areas of Texas and Oklahoma, and the probability that the Government would substantially alter its program of production restriction. A possible resistance to continued advance is seen in the freer offerings of loan cotton around 12c for old crop months. The declining trend of consumption of American cotton both at home and abroad still continues with the Government expected to resort to export bounties. Quotations for middling uplands on the N. Y. Cotton Exchange follow:

	April 8	May 8		
	Close	High	Low	Close
May	11.09	11.90	11.70	11.84
July	11.15	11.93	11.72	11.86
October	....	11.56	11.42	11.50

Tire Fabrics

(Prices Net at the Mill—Process Tax Included)

Peeler, carded, 23/5/3	lb. .34¼	@	.34¾
Peeler, carded, 23/4/3	lb. .35¼	@	.35¾
Peeler, carded, 15/3/3	lb. .32½	@	.32¾
Peeler, carded, 13/3/3	lb. .31¾	@	.31¾
Egyptian, carded, 23/5/3	lb. .46½	@	.47
Egyptian, combed, 23/5/3	lb. .51½	@	.52
CHAFERS			
Carded, American, 1 1/16"	lb. .35	@	.36
Carded, American, 1"	lb. .30	@	.32
LENO BREAKER			
Carded, American, 1 1/16"	lb. .36	@	.37
Carded, American, 1"	lb. .31½	@	.32½

Sheetings

Count	Width	Weight			
48x40	36 in.	5.50	lb.	— @	.05¼
40x40	36 in.	6.15	lb.	— @	.04⅞
40x36	36 in.	6.50	lb.	— @	.04⅝
48x48	40 in.	2.50	lb.	— @	.10⅝
48x48	40 in.	2.85	lb.	— @	.09⅞
56x60	40 in.	3.60	lb.	— @	.08⅜
48x44	40 in.	3.75	lb.	— @	.07½
44x40	40 in.	4.25	lb.	— @	.06⅝

Ducks

Enameling	lb. .32	@	.37½
Belting and Hose	lb. .34	@	—
Single filling, A grade	lb. .16¾	@	.17¼
Double filling	lb. .17¾	@	.18¼

Closing Rubber Prices on New York Commodity Exchange, Inc.

No. 1 Standard Contract of 10 tons

FROM APRIL 9 TO MAY 8

Date	Spot	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Sales
Apr. 9	11.25	11.26	11.34	11.40	11.47	11.53	11.61	11.69	11.77	11.85	11.91	11.98	12.06		203
10	11.38	11.35	11.43	11.49	11.55	11.62	11.70	11.77	11.85	11.93	12.01	12.08	12.16		391
11	11.54	11.53	11.61	11.66	11.71	11.77	11.84	11.92	12.01	12.10	12.18	12.25	12.33		415
12	11.38	11.40	11.48	11.54	11.61	11.65	11.72	11.81	11.90	11.99	12.07	12.14	12.22		135
13	11.58	11.55	11.63	11.70	11.78	11.85	11.92	11.99	12.06	12.13	12.21	12.28	12.36		126
14	—	—	—	—	—	—	—	—	—	—	—	—	—		—
15	11.93	11.90	11.97	12.01	12.06	12.13	12.21	12.28	12.35	12.43	12.51	12.58	12.66		607
16	11.69	11.72	11.79	11.84	11.89	11.95	12.02	12.08	12.14	12.22	12.36	12.43	12.51		285
17	11.69	11.63	11.70	11.77	11.85	11.89	11.95	12.03	12.11	12.19	12.27	12.35	12.43		225
18	11.68	11.65	11.72	11.77	11.83	11.90	11.97	12.04	12.11	12.18	12.25	12.33	12.41		242
19	—	—	—	—	—	—	—	—	—	—	—	—	—		—
20	—	—	—	—	—	—	—	—	—	—	—	—	—		—
21	—	—	—	—	—	—	—	—	—	—	—	—	—		—
22	11.81	11.77	11.83	11.89	11.95	12.01	12.07	12.13	12.20	12.27	12.34	12.41	12.49		362
23	11.70	11.70	11.76	11.81	11.87	11.95	12.03	12.12	12.16	12.21	12.28	12.35	12.42		286
24	11.62	11.60	11.66	11.72	11.78	11.83	11.88	11.95	12.03	12.11	12.17	12.23	12.30		265
25	11.75	11.70	11.76	11.81	11.87	11.93	12.00	12.07	12.13	12.20	12.27	12.34	12.41		221
26	11.75	11.68	11.74	11.79	11.85	11.90	11.96	12.04	12.12	12.21	12.27	12.34	12.41		368
27	11.62	11.57	11.63	11.70	11.78	11.84	11.91	11.98	12.05	12.12	12.16	12.23	12.30		182
28	—	—	—	—	—	—	—	—	—	—	—	—	—		—
29	11.56	11.56	11.62	11.70	11.78	11.84	11.90	11.97	12.04	12.11	12.18	12.25	12.33		512
30	11.59	——	11.63	11.70	11.77	11.83	11.90	11.97	12.05	12.13	12.20	12.27	12.35		80
May 1	11.50	——	11.54	11.62	11.70	11.75	11.80	11.87	11.94	12.01	12.07	12.13	12.20	12.27	104
2	11.38	——	11.44	11.51	11.58	11.64	11.70	11.77	11.84	11.92	11.98	12.06	12.15	12.24	139
3	11.38	——	11.47	11.53	11.59	11.64	11.68	11.76	11.83	11.91	12.00	12.07	12.15	12.22	46
4	11.50	——	11.56	11.61	11.66	11.71	11.76	11.85	11.94	12.04	12.11	12.18	12.26	12.34	49
5	—	—	—	—	—	—	—	—	—	—	—	—	—		—
6	11.50	——	11.54	11.59	11.64	11.69	11.75	11.82	11.90	11.99	12.09	12.16	12.24	12.32	43
7	11.50	——	11.52	11.59	11.66	11.71	11.77	11.84	11.91	11.98	12.08	12.15	12.23	12.31	46
8	11.56	——	11.59	11.65	11.71	11.77	11.83	11.90	11.97	12.05	12.13	12.21	12.30	12.39	281

Rubber CHEMICAL Markets

NEW YORK, MAY 10, 1935

[All Quotations F.O.B. Works Unless Otherwise Noted]

ACCELERATORS

Organic			
A-1 (Thiocarbanilid)	lb.	.21 @	.25
A-5-10	lb.	.33 @	.36
A-7	lb.	.53 @	.65
A-11	lb.	.60 @	.75
A-16	lb.	.55 @	.65
A-19	lb.	.56 @	.75
A-32	lb.	.70 @	.80
A-17	lb.	— @	—
Aldehyde ammonia, crystals	lb.	.65 @	.67
Altax	lb.	— @	—
Captax	lb.		
Crylene	lb.	.55 @	.65
paste	lb.	.45 @	.55
Di-Ortho-Tolyguanidine	lb.	.44 @	.47
Diphenylguanidine	lb.	.35 @	.37
Ethylidene aniline	lb.	.45 @	.47½
Formaldenyde aniline	lb.	.37½ @	.42
Guantal	lb.	.42 @	.51
Heptene	lb.	.40 @	—
Hexamethylene-tetramine	lb.	.37 @	—
Lead Oleate, No. 999	lb.	.11 @	—
Witco	lb.	.11 @	—
Lithex	lb.	.18 @	.20
Methylenedianiline	lb.	.36 @	.37
Monex	lb.	3.25 @	—
Oxynone	lb.	.68 @	.80
Phenex	lb.	.50 @	.55
Pipsolene	lb.	3.55 @	4.00
R & H 40	lb.	.40 @	.41
R & H 50	lb.	.40 @	.41
R-2	lb.	1.55 @	1.90
Safex	lb.	1.20 @	1.25
SPDX	lb.	.75 @	—
Super-Sulphur No. 1	lb.		
No. 2	lb.		
Thiocarbanilid, drums	lb.	.21 @	.25
Trimene	lb.	.75 @	—
base	lb.	1.20 @	—
Triphenylguanidine	lb.	.58 @	.60
Tuads	lb.		
Ureka	lb.	.62 @	1.00
Ureka B	lb.	— @	—
Ureka C	lb.	.58 @	.69
Vulcanex	lb.		
Vulcone	lb.		
Vulcanol	lb.		
Z-88-P	lb.	.48 @	.60
Zimate	lb.		
Inorganic			
Litharge, domestic	lb.	.06½ @	—
Magnesia, calcined, heavy	ton	60.00 @	65.00

COLORS

Blacks (See Compounding Materials)

Blues			
Prussian	lb.	.36 @	.38
Ultramarine	lb.	.10 @	.12
Browns			
Sienna, Italian	lb.	.06 @	'13
Umber, Turkey	lb	.04 @	.04½
Greens			
Chrome, light	lb.	.20 @	.30
medium	lb.	.21 @	.31
Chromium Oxide, bbl.	lb.	.22 @	.23
Guignet's Green	lb.	.70 @	—
Reds			
Antimony			
crimson, 15/7	lb.	.46 @	—
sulfur, free	lb.	.48 @	.60
Indian English	lb.	.09 @	.10
Domestic (Maroon)	lb.	.11 @	—
Red oxide, pure	lb.	.10 @	.12
Rub-Er-Red, f.o.b. Easton	lb.	.09¼ @	—
Whites			
Cryptone CB, No. 21	lb.	.06 @	.06¼
Cryptone, No. 19	lb.	.06 @	.06¼
Lithopone			
Albalith, black label—11	lb.	.04½ @	.04¾
Azolith	lb.	.04½ @	.04¾
Rayox	lb.		
Titanium oxide	lb.	.17 @	.19
Titanox B	lb.	.06 @	.06½
Titanox C	lb.	.06 @	.06½
XX—20 Zinc Sulphide, bbls.	lb.	.10½ @	.10¾
XX—86 Zinc Sulphide, bbls.	lb.	.10½ @	.10¾
Zinc Oxide—American Process			
American Azo:			
ZZZ (lead free)	lb.	.05¾ @	.06
ZZ (leaded)	lb.	.05½ @	.05¾
Horsehead Lead Free Brand:			
Special—3	lb.	.05¾ @	.06
XX Red—4	lb.	.05¾ @	.06
XX Red—72	lb.	.05¾ @	.06
XX Red—78	lb.	.05¾ @	.06
XX Red—103	lb.	.05¾ @	.06
U. S. P.—X, bbls.	lb.	.12½ @	.12¾
Kadox, black label—15	lb.	.09½ @	.09¾
Blue label—16	lb.	.08¾ @	.08½
Red label—17	lb.	.07 @	.07¼
St. Joe, black label	lb.	.05¾ @	.06
green label	lb.	.05¾ @	.06
red label	lb.	.05¾ @	.06
Zinc Oxide—French Process			
Anaconda, lead free	lb.	.05¾ @	.06
Anaconda, selected lead free	lb.	.06 @	.06¾
Florence White seal—7 bbls.	lb.	— @	.10½
Green seal—8	lb.	.09½ @	.09½
Red seal—9	lb.	.08½ @	.08½
Yellows			
Chrome	lb.	.15 @	.16
Ocher, dom. med.	lb.	.02¾ @	—

BLACKS

Arrow "Aerfloted" Specification	lb.	.0535 @	.0825
Bone, powdered	lb.	.05½ @	.12½
Carbon, compressed	lb.	.0535 @	.0825
uncompressed	lb.	.0535 @	.0825
"Certified," Cabot	lb.	.0535 @	.0825
Spherons	lb.	.0535 @	.0825
"Disperso"	lb.	.0535 @	.0825
Drop, bbls.	lb.	.05½ @	.14
"Excello," compressed	lb.	.0535 @	.0825
"Fumonex"	lb.	.03 @	.07
"Gastex"	lb.	.03 @	.07
Lampblack	lb.	.07 @	.12
"Micronex"	lb.	.0535 @	.0825
"Supreme"	lb.	.0535 @	.0825
Thermatomic—"P 33"	lb.	— @	—
"Thermax"	lb.	— @	—
United "Dixie" & "Kosmos"	lb.	.0535 @	.0825

COMPOUNDING MATERIALS

Aluminum Flake	ton.	21.85	@24.50
Ammonia carbonate, lump	lb.	.10½ @	.12
Asbestine	ton	14.00	@15.00
Barium carbonate (98-100%)	ton	56.50	@61.50
Barium Dust	lb.	.05 @	.06
Barytes	ton	22.00	@24.00
Basofor	lb.	.04½ @	—
Bentonite	lb.	.02 @	.03
Blanc fixe dry f.o.b. works	ton	70.00	@75.00
Calcene	ton	35.00	@43.00
Catalpo (fact.)	lb.	.02 @	—
Chalk, precipitated			
Suprex white, extra lt.	ton	45.40	@60.00
heavy	ton	45.00	@55.00
Clay, Kaolin, domestic	ton	7.50	@15.00
Aerfloted, Suprex	ton	8.50	@10.00
Congaree	ton	9.00 @	—
Dark Blue Ridge	ton		
Dixie	ton		
Dixie, Jr.	ton		
Lexington	ton	10.00	@22.00
McNamee	ton		
Par	ton		
Tensulite		15.00 @	—
Witco	ton	8.50 @	9.00
Cotton Flock	lb.	.10½ @	.18
Glues, extra white	lb.	.28 @	.30
medium white	lb.	.14 @	.19
Kalite No. 1	ton	30.00	@55.00
Kalite No. 3	ton	40.00	@65.00
Magnesium carbonate	lb.	.08 @	—
Mica	ton	65.00	@80.00
Rottenstone (powdered)	lb.	.02½ @	.05
Soapstone, powdered	ton	16.00	@22.00
Starch, powdered	cwt.	3.56 @	3.76
Talc, domestic	ton	12.00	@15.00
Pyrax A	ton		
Whiting, commercial	ton	17.00	@18.00
English Cliffstone	ton	33.00	@43.00
Sussex	ton		
Witco	ton	15.00 @	—
Wood Flour	ton	18.00	@30.00
Zinc Carbonate	lb.	.10½ @	.11
Zinc Stearate	lb.	.25 @	—

MINERAL RUBBER

Black Diamond	ton	27.00 @	—
Genasco, solid (factory)	ton	25.00	@27.00
Hard Hydrocarbon	ton		
Parmr, solid	ton	25.00	@28.00
Pioneer, MR, solid	ton		
Pioneer-granulated	ton		

SPECIALTIES

Aromatics—Rodo	lb.		
Para-Dors No. 5145	lb.	2.00 @	—
Sunproof	lb.	.35 @	.37½
Sponge Paste	lb.	— @	.80
Tonox	lb.	.56 @	.60

SOFTENERS

Acids			
Acetic, 28%, bbls.	100 lb.	2.40 @	—
glacial, USP, bbls.	100 lb.	12.25 @	—
Nitric, 36 degrees	cwt.	5.00 @	6.00
Sulfuric, 66 degrees	ton	15.50 @	16.50
Acids, Fatty			
Laurex	lb.	.15 @	.16
Stearex	lb.	.08½ @	.13
Stearic, double pressed	lb.	.09 @	.14
Alkalies			
Caustic Soda, 76%	cwt.	3.60 @	3.75
Soda Ash, 58% C.L.	cwt.	2.52 @	—
Oils			
Corn, refined, bbls.	lb.	.12½ @	—
Cottonseed, crude	gal.	.093 @	.10
Cycline Oil	gal.	.15 @	.28
Degras (c.l. 100 bbls.)	lb.	.02¾ @	—
Less c.l. (10-25 bbls.)	lb.	.03 @	—
Lots less than 10 bbls.	lb.	.03¼ @	—
Fluxrite	lb.	.05½ @	.06½
Palm Lagos	lb.	.05 @	—
Niger	lb.	.04¾ @	—
Para-Flux	gal.	.17 @	—
Petrolatum, light	lb.	.02 @	.02½
Pigmentaroil, tank cars	gal.	.16 @	—
in drums	gal.	.22 @	.23½
Pine, steam distilled	gal.	.64 @	.65
dest. dist., drums	gal.	.40 @	.45
Rosin Oil, cmpd.	gal.	.40 @	—
Rubtack	lb.	.40 @	—
Seedine, c.l.	lb.	.07¼ @	—
Tackol	lb.	.08½ @	.18
Witco Palm Oil	lb.	.05 @	—
Witco Softener (f.o.b. wks.)	gal.	.15 @	—
Woburn No. 8, c.l.	lb.	.06 @	—
Wobonite, c.l.	lb.	.05 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.05 @	.06
coal tar	gal.	.05½ @	.06
hardwood	ton	20.00	@25.00
pine, 200 lb. gr. wt.	bbl.	6.00 @	—
Rosin, grade K, 280 lb.	bbl.	6.00 @	—
Pigmentar, tank cars	gal.	.16 @	—
in drums	gal.	.22 @	.23½
R. S. L. Resin	lb.	— @	—
Retort Pine Tar, drums	bbl.	12.00	@13.00
Solvents			
Acetone, pure	lb.	.12½ @	.13½
Alcohol, denatured, methanol, No. 1 bbls.	gal.	.29½ @	—
Benzene, 90%	gal.	.15 @	.24
Beta-Trichlorethane	gal.	— @	—
Bondogen		— @	—
Carbon, bisulfide	lb.	.05½ @	.06
Carbon, tetrachloride	lb.	.05 @	.05¾
Dichlorethylene	lb.	.29 @	—
Dipentene, cml., drums	gal.	.40 @	.41
Dryolene (f.o.b. Okla.)	gal.	.10 @	.10½
Ethylene dichloride	lb.	.05½ @	.06½
Gasoline, steel bbls.	gal.	.16 @	—
Naphtha, solvent	gal.	.26 @	.31
Plastogen	lb.		
Reogen	lb.		
Rub-Sol (f.o.b. Okla.)	gal.	.09 @	—
Trichlorethylene	lb.	— @	.09½
Turpentine, spirits	gal.	.54 @	—
dest. dist., drums	gal.	.45 @	—
Waxes			
Beeswax, white	lb.	.34 @	.37
Carnauba, yellow	lb.	.34 @	.36
Ceresin, white, dom.	lb.	.08 @	.11
Montan, crude	lb.	.10 @	.11
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Paraffin (c.l.—f.o.b. N. Y.)			
Yellow crude scale	lb.	.03¼ @	—
White crude scale 124/126.	lb.	.03¼ @	—
Refined, 125/127	lb.	.04¾ @	—

ANTI-OXIDANTS

AgeRite, Gel	lb.		
HP	lb.		
Powder	lb.		
Resin	lb.		
White	lb.		
Albasan	lb.	.70 @	.75
Antox	lb.		
B-L-E	lb.	.57 @	.60
Flectol-H	lb.	— @	—
Flectol White	lb.	— @	—
Flectol B	lb.	— @	—
Neozone	lb.		
Oxynone	lb.	.66 @	.90
Retardex	lb.	.35 @	.40
Stabilite	lb.	.57 @	.62
Stabilite Alba	lb.	.70 @	.75
VGB	lb.	.55 @	.60

MOLD LUBRICANTS

Aresklene	lb.	— @	—
Cocoa Soapstock	lb.	.06 @	.08
Dipex	lb.	.06 @	.08
Rusco, f.o.b. Nitro	lb.	.12 @	.30
Sericite, f.o.b. N. Y.	ton	65.00 @	—
Soap Tree Bark, cut, sifted	lb.	.06 @	.08
Zip (Mold Wash)	lb.	— @	—

FACTICE OR RUBBER SUBSTITUTES

Amberex	lb.	.13¾ @	—
Black	lb.	.08½ @	—
White	lb.	.08 @	.12
Brown	lb.	.07 @	.11½
Duphax	lb.	.10 @	—

VULCANIZING INGREDIENTS

Sulfur Chloride, yellow (drs.)	lb.	.03½ @	.04
Sulfur flour.			
Refined, 100% pure (bags)	cwt.	3.45 @	—
Commercial (bags)	cwt.	1.95 @	2.80
Telloy	lb.		
Vandex	lb.		

Crude Rubber
Latex and Guayule
Reclaimed Rubber
Tires and Tubes

STATISTICS OF THE INDUSTRY

Rim Production
Automobiles
Gasoline
Cotton Prices

U. S. Imports and Exports of Crude Rubber

YEARS	Gross Imports: Long Tons	Gross Imports: Total Declared Value	Gross Imports: Average Declared Value per pound Cents	Re-exports: Long Tons	Re-exports: Total Declared Value	Re-exports: Average Declared Value per pound Cents	Net Imports: Long Tons
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,735,488	39.76	398,483
1928	439,731	244,854,973	25.03	32,159	18,128,361	25.17	407,572
1929	560,084	239,178,783	19.15	36,485	16,868,733	20.64	523,599
1930	482,082	139,134,330	12.89	30,205	9,316,205	13.77	451,877
1931	497,138	72,918,949	6.54	25,595	4,255,472	7.42	471,543
1932	409,584	31,936,459	3.47	20,929	2,015,612	4.30	388,655
1933	407,817	44,034,064	4.82	20,537	2,601,352	5.65	427,280
1934	449,322	97,898,519	10.06	23,848	5,770,109	11.23	425,615
1933:							
May	26,002	1,694,963	2.93	1,842	189,451	4.59	24,894
June	22,900	1,780,495	3.47	1,276	156,168	5.46	21,624
July	44,625	4,293,111	4.29	1,419	219,945	6.92	43,206
August	44,257	5,391,709	5.44	2,205	302,132	6.12	42,052
Sept.	44,912	6,110,956	6.07	2,369	335,798	8.89	42,543
Oct.	44,474	6,115,330	6.14	2,669	397,167	6.64	41,805
Nov.	40,582	5,850,714	6.44	2,188	333,631	6.81	38,394
Dec.	39,461	5,869,556	6.75	1,888	293,690	6.94	37,573
1934:							
Jan.	47,963	7,403,123	6.89	1,975	352,116	7.96	45,988
Feb.	34,335	5,262,711	6.84	2,133	476,232	9.97	32,202
Mar.	41,119	6,765,173	7.34	2,947	583,313	8.83	38,172
April	43,841	8,232,746	8.37	2,814	588,453	9.18	41,027
May	48,494	10,001,239	9.21	2,389	544,212	10.17	46,105
June*	47,289	10,747,464	10.14	2,012	501,499	11.33	45,277
July	41,443	9,670,617	10.41	2,366	660,199	13.99	39,077
August	31,531	7,873,690	11.15	1,393	400,433	12.83	30,138
Sept.	31,074	8,293,859	11.92	1,665	474,446	12.72	29,409
Oct.	28,318	8,203,447	12.93	2,058	620,754	13.46	26,260
Nov.	36,325	10,470,076	12.87	1,230	327,672	11.89	35,095
Dec.	17,590	4,974,374	12.62	866	240,780	12.46	16,724
1935:							
Jan.	39,675	10,852,308	12.21	977	278,229	12.72	38,698
Feb.	47,271	12,291,242	11.61	1,845	480,440	11.62	45,426
March	45,350	11,801,152	11.62	1,868	486,379	11.62	43,482

* Revised.

United States Imports of Guayule, Balata, Jelutong, Liquid Latex

(All Quantities in Long Tons)

	Guayule Tons	Guayule Dollars	Balata Tons	Balata Dollars	Jelutong Tons	Jelutong Dollars	Liquid Latex (1) Tons	Liquid Latex (1) Dollars
1924	1,356	536,392	464	568,456	6,165	1,237,100	2,157	864,059
1925	3,781	1,803,448	517	574,750	6,749	1,642,531	3,853	3,537,810
1926	4,305	2,562,096	354	327,213	7,263	3,127,757	3,388	4,680,386
1927	5,018	2,674,957	582	447,246	7,785	2,448,657	1,116	876,077
1928	3,075	1,755,685	731	430,855	7,552	2,540,059	4,167	2,185,579
1929	1,231	545,175	728	566,964	8,203	2,458,136	3,728	1,787,997
1930	1,096	347,388	501	422,684	5,907	1,403,244	4,449	1,506,804
1931	—	—	1,208	411,692	5,777	1,019,010	4,650	884,355
1932	—	—	708	147,403	4,607	616,596	5,085	601,999
1933	—	—	1,658	2,261,869	5,989	944,895	11,085	1,833,671
1934	402	75,349	1,054	438,209	4,988	943,752	13,070	3,633,253
1934:								
Mar.	51	9,464	145	51,080	25	43,532	1,134	257,545
April	100	18,928	128	50,965	533	98,658	1,334	321,390
May	100	18,928	143	65,471	538	95,710	1,407	368,642
June	51	9,422	84	49,881	388	71,672	1,458	421,317
July	—	—	160	63,963	482	87,412	1,231	385,733
August	100	18,607	100	36,732	516	85,651	1,169	369,335
Sept.	—	—	48	14,415	259	47,542	936	312,967
Oct.	—	—	14	2,797	278	48,287	922	282,503
Nov.	—	—	60	20,169	332	60,904	887	296,447
Dec.	—	—	6	2,458	192	31,947	581	184,588
1935:								
Jan.	—	—	81	34,687	448	80,097	848	287,583
Feb.	—	—	62	20,981	222	33,850	573	179,583
March	—	—	57	15,917	488	80,643	1,290	354,654

(1) Weight given in pounds of dry rubber contained in latex

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

(All Quantities in Long Tons)

	Figures on Monthly Basis: 1928	1929	1930	1931	1932	1933	1934	1935
Jan.	34,403	43,002	36,194	28,557	29,648	22,645*	39,284*	47,103
Feb.	33,702	41,594	33,302	28,797	31,821	21,392*	40,609	43,187
Mar.	35,688	44,730	35,540	32,788	29,505	17,483*	47,097	42,620
Apr.	32,772	47,521	39,686	33,321	27,518	25,928	44,947	
May	37,333	49,233	39,386	37,817	30,957	44,074	43,012	
June	37,676	43,227	34,195	37,916	41,475	50,743*	40,241	
July	37,407	41,526	29,508	31,397	29,976	49,614*	32,647	
Aug.	42,927	38,274	30,850	27,586	23,721	44,428*	33,310	
Sept.	39,882	34,707	25,515	23,638	23,847	35,281*	30,352	
Oct.	40,857	34,800	27,516	22,277	22,286	31,543*	31,347	
Nov.	37,461	27,659	23,691	22,943	23,231	28,831*	34,842	
Dec.	31,232	25,531	21,687	21,409	18,015	28,757*	36,662	
Tot.	441,340	469,804	375,980	348,986	332,000	400,719*	454,350*	

* Revised.

Reclaimed Rubber in the United States

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

(All Quantities in Long Tons)

Year	Production	Consumption: Tons	Consumption: % to Crude	Stocks*	Year	Production	Consumption: Tons	Consumption: % to Crude	Stocks*
1925	132,930	137,105	35.6	13,203	1930	157,967	153,497	40.8	22,000
1926	180,582	164,500	45.9	23,213	1931	133,351	124,126	33.9	19,257
1927	189,144	178,471	47.6	24,980	1932	75,608	77,504	23.4	16,354
1928	208,516	223,000	50.4	24,785	1933	99,560	81,602	19.9	20,746
1929	218,954	226,588	48.4	27,464	1934	110,010	100,597	22.3	23,079

	Figures on Monthly Basis: Production	Consumption: Tons	Consumption: % to Crude	Stocks*		Production	Consumption: Tons	Consumption: % to Crude	Stocks*
1934:									
Jan.	9,828	7,000	17.8*	24,263	July	9,446	8,175	25.0	24,926
Feb.	9,504	7,646	18.8	23,356	Aug.	8,160	8,493	25.5	24,607
Mar.	11,479	9,683	20.6	25,113	Sept.	6,974	7,028	23.2	24,540
Apr.	10,185	9,387	20.9	22,033	Oct.	8,145	8,167	26.1	24,511
May	10,848	9,500	22.1	22,887	Nov.	7,268	7,775	22.3	23,999
June	10,820	9,459	23.5	23,664	Dec.	7,353	8,284	22.6	23,079
1935:									
Jan.	10,465	11,261	23.9	22,291	July	.....	.....	...	.....
Feb.	10,072	9,374	23.3	22,989	Aug.	.....	.....	...	.....
Mar.	10,549	9,741	22.9	20,637	Sept.	.....	.....	...	.....
Apr.	.....	.....	...	.....	Oct.	.....	.....	...	.....
May	.....	.....	...	.....	Nov.	.....	.....	...	.....
June	.....	.....	...	.....	Dec.	.....	.....	...	.....

* Stocks on hand at the end of month or year.
* Revised.

U. S. Consumption of Gasoline

(Bureau of Mines Statistics)

(In Thousands of Barrels of 42 Gallons)

	1933*	1934	1935		1932	1933*	1934
January	26,397	29,416	28,062	August	35,706	37,400	38,933
February	23,320	25,048	26,432	September	33,828	34,580	34,877
March	28,123	30,528	31,997	October	32,680	33,022	37,544
April	29,791	32,735		November	29,895	30,312	34,839
May	33,709	38,141		December	27,110	28,572	30,486
June	37,699	36,296					
July	34,087	37,393		Total	373,900	377,003*	406,267

* Revised on basis of final 1933 figures issued September 26, 1934 by Bureau of Mines.

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave.
1933																																
January			3 1/4	3 1/4	3 1/4	3 1/4	2 11/16		3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4		3	3 1/4	2 15/16	3	3 1/4	3		3	3 1/4	3 1/4						3
February	2 11/16	3	2 13/16	2 13/16		3	2 11/16		3		3		2 15/16	3	2 15/16		2 15/16	2 15/16		3 1/16	3 1/16		3 1/16	2 15/16		2 15/16					3
March	3 1/16		3 1/16																													3
April	2 15/16		2 15/16		2 11/16																											3 1/16
May	4 1/16			3	4 1/16	3 11/16	3 1/16	3 1/16	4 1/16	3 11/16	3 1/16	3 1/16	3 1/16		4 1/16	3	3 1/16	4 1/16	4 1/16	4 1/16	4 1/16	3 15/16	4 1/16	4 1/16	4 1/16	4 1/16	4 1/16	4 1/16	4 1/16	4 1/16	4 1/16	4 1/16
June	4 1/16			4 1/16	6 1/16	6 1/16	6 1/16	6 1/16	6 1/16	6 1/16	5 1/16	6 1/16	6 1/16	5 1/16	5 1/16	5 1/16	5 1/16	5 1/16	5 1/16	5 1/16	5 1/16	5 1/16	5 1/16	5 1/16	5 1/16	5 1/16	5 1/16	5 1/16	6 1/16	6 1/16	5 1/16	5 1/16
July	6 1/16		6 1/16		6 1/16	6 1/16	6 1/16	7 1/16	6 1/16	7 1/16	7 1/16	7 1/16	8 1/16	8 1/16	8 1/16		7 1/16	7 1/16	8 1/16	8 1/16	7 1/16	7 1/16	7 1/16	8 1/16	8 1/16	7 1/16	7 1/16	6 1/16	7 1/16	7 1/16	7 1/16	7 1/16
August	7 1/16		8	7 1/16	7 1/16	7 1/16	6 1/16	7 1/16	7 1/16	7 1/16	7 1/16	6 1/16	6 1/16	7 1/16	7 1/16	7 1/16	6 1/16	7 1/16	7 1/16	7 1/16	7 1/16	7 1/16	7 1/16	7 1/16	7 1/16	7 1/16	7 1/16	7 1/16	7 1/16	7 1/16	7 1/16	7 1/16
September	7 1/16		7 15/16	8	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16
October	7 15/16		7 15/16	8	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16
November	7 15/16		8	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16
December	9 1/16			9 1/16	9 1/16	8 1/16	9 1/16	8 1/16	8 1/16		8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	9	8 1/16	8 1/16	8 1/16	8 1/16	9	9 1/16	8 1/16	9 1/16	9 1/16	8 1/16	8 1/16	8 1/16	9 1/16	9		
1934																																
January	9		8 1/16	9	9	9		8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16	8 1/16
February	9 3/16		9 1/16		10 1/16	10 1/16		10 1/16	10 1/16	10 1/16																						
March	10 1/16		10 1/16		10 1/16	10 1/16		10 1/16	11 1/16	11 1/16																						
April	11 1/16		11 1/16		11 1/16	11 1/16		11 1/16	11 1/16	11 1/16																						
May	14 1/16		14 1/16		15 1/16	15 1/16		15 1/16	14	13 1/16																						
June	13		14 1/16		13 1/16	14 1/16		15 1/16	13 1/16	13 1/16																						
July	14		15		14 1/16	14 1/16		15 1/16	14 1/16	14 1/16																						
August	14 7/16		15		15 1/16	15 1/16		15 1/16	15 1/16	15 1/16																						
September	14 1/16		14 1/16		15 1/16	15 1/16		15 1/16	15 1/16	15 1/16																						
October	14 1/16		13 7/16	15 1/16	13 1/16	15 1/16		15 1/16	13 1/16	13 1/16																						
November	13 1/16		13 1/16	14	13 1/16	13 1/16		13 1/16	13 1/16	13 1/16																						
December	13 1/16		12 1/16	13	13	13 1/16		13 1/16	12 1/16	12 1/16																						
1935																																
January	13 1/16		13 1/16	13 1/16	13 1/16	12 1/16		13 1/16	13 1/16	13 1/16																						
February	12 1/16			12 1/16	12 1/16			12 1/16	12 1/16																							
March	12 1/16			12 1/16	12 1/16			12 1/16	12																							
April	11 1/16		11 1/16	11 1/16	11	11 1/16		11 1/16	11 1/16																							
May	11 1/16		11 1/16	11 1/16				11 1/16																							

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1929

Year	Cents	Year	Cents	Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15	1922	17.50	1926	48.50
1911	141.30	1915	65.85	1919	48.70	1923	29.45	1927	37.72
1912	121.60	1916	72.50	1920	36.30	1924	26.20	1928	22.48
1913	82.04	1917	72.23	1921	16.36	1925	72.46	1929	20.55

Average Monthly Price per Pound Since 1928

	1929 Cents	1930 Cents	1931 Cents	1932 Cents	1933 Cents	1934 Cents	1935 Cents
Jan.	20.14	15.24	8.34	4.38	3.08	9.32	13.10
Feb.	23.7	15.85	7.70	4.03	2.95	10.45	12.92
Mar.	24.55	15.34	7.71	3.35	3.01	11.01	11.51
Apr.	21.18	14.93	6.43	3.02	3.56	12.10	11.55
May	21.46	14.24	6.49	3.09	4.95	13.26	
June	20.64	12.45	6.35	2.66	6.15	13.51	
July	21.30	11.24	6.37	2.89	8.01	14.60	
Aug.	20.59	9.96	5.38	3.63	7.31	15.47	
Sept.	20.37	8.28	5.08	3.84	7.30	15.36	
Oct.	19.67	8.20	4.87	3.65	7.64	13.96	
Nov.	16.62	9.01	4.65	3.44	8.66	13.04	
Dec.	16.12	9.05	4.64	3.24	8.87	12.98	
Average for Year	20.55	11.98	6.17	3.49	5.96	12.92	

London Closing Prices of Ribbed Smoked Sheets

(In Pence Per Pound)

Day	Feb.	Mar.	Apr.	May	Day	Feb.	Mar.	Apr.	May
1	6 1/8	6 7/16	5 11/16	5 5/8	17			5 11/16	
2	6 1/8	6 1/4	5 11/16	5 7/16	18	6 1/4	5 7/16	5 7/16	
3			5 7/16	5 1/2	19	6 3/16	5 3/16		
4	6 3/16	6 1/16	5 3/16		20	6 3/16	5 1/2		
5	6 1/16	6 1/16	5 3/16		21	6 3/16	5 3/16		
6	6 1/16	6 1/16	5 3/16		22	6 1/2	5 1/4		
7	6 1/16	6		5 7/16	23	6 1/2	5 1/4	5 11/16	
8	6 3/16	6 1/16	5 1/16	5 7/16	24			5 11/16	
9	6 1/16	6	5 7/16		25	6 3/16	5 7/16	5 11/16	
10			5 1/2		26	6 1/16	5 7/16	5 3/4	
11	6 1/16	5 15/16	5 5/16		27	6 1/4	5 11/16	5 3/4	
12	6 1/4	5 15/16	5 5/16		28	6 1/16	5 11/16		
13	6 1/4	5 15/16	5 5/16		29		5 5/16	5 5/16	
14	6 3/16	5 7/8			30		5 5/16	5 11/16	
15	6 1/16	5 7/16	5 3/4		31				
16	6 1/4	5 7/16	5 5/16						

Average Monthly Price Per Pound

Month	1932 Pence	1933 Pence	1934 Pence	1935 Pence
Jan.	3.052	2.264	4.429	6.434
Feb.	2.760	2.093	4.920	6.292
Mar.	2.047	2.099	5.136	5.745
Apr.	1.876	2.323	5.712	5.604
May	1.825	2.966	6.207	
June	1.750	3.392	6.245	
July	1.875	3.860	7.053	
Aug.	2.654	3.811	7.401	
Sept.	2.485	3.728	7.409	
Oct.	2.425	3.957	6.806	
Nov.	2.518	4.096	6.294	
Dec.	2.444	4.200	6.295	
Average for Year	2.434	3.233	6.159	

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Date	Mar.	Apr.	May	Date	Mar.	Apr.	May	Date	Mar.	Apr.	May
1	12.60	11.30	12.15	11	11.30	11.90		21	11.05	——	
2	12.60	11.25	12.15	12	11.25	11.80		22	11.30	11.85	
3	——	11.20	12.25	13	11.45	11.95		23	11.20	11.80	
4	12.55	11.20	12.30	14	11.50	——		24	——	11.80	
5	12.55	12.20	——	15	11.50	12.00		25	11.40	12.00	
6	12.50	11.30	12.15	16	11.20	11.90		26	11.35	12.25	
7	12.50	——	12.15	17	——	11.75		27	11.35	12.25	
8	12.45	11.40	12.25	18	10.65	11.90		28	11.25	——	
9	12.30	11.55		19	10.95	——		29	11.30	12.20	
10	——	11.50		20	11.00	——		30	11.30	12.20	
								31	——	——	

Average Monthly Price Per Pound

	1932 Cents	1933 Cents	1934 Cents	1935 Cents
Jan.	6.65	6.23	11.25	12.70
Feb.	6.85	6.05	12.28	12.58
Mar.	6.86	6.39	12.30	11.63
Apr.	6.16	7.02	11.80	11.73
May	5.72	8.64	11.44	
June	5.02	9.47	12.20	
July	5.87	10.76	12.84	
Aug.	7.43	9.55	13.40	
Sept.	6.30	9.64	13.00	
Oct.	6.30	9.58	12.48	
Nov.	6.22	10.04	12.53	
Dec.	6.00	10.17	12.76	
Average for Year	6.41	8.63	12.36	

World Stocks of Crude Rubber

ON HAND OR AFLOAT TO THE U. S.

At End of	ON HAND 1933	ON HAND 1934	ON HAND 1935	AFLOAT 1933	AFLOAT 1934	AFLOAT 1935	ON HAND AND AFLOAT 1933	ON HAND AND AFLOAT 1934	ON HAND AND AFLOAT 1935
Jan.	396,376	368,660	346,084	32,539	45,768	42,066	428,915	414,428	388,150
Feb.	381,794	358,681*	339,335*	32,898	53,063	42,969	414,692	411,744*	382,304*
Mar.	390,135	352,897*	338,700	29,531	54,722	44,485	419,666	407,619*	383,185
Apr.	382,167	351,981		30,745	56,251		412,912	408,232	
May	364,623	351,329		43,342	57,921		407,965	409,250	
June	333,954	358,149		63,608	46,698		397,562	404,847	
July	326,609	364,883		57,435	45,869		384,044	410,752	
Aug.	325,148	362,647		53,084	40,278		378,232	402,925	
Sept.	334,637	359,667		57,255	38,831		391,982	398,498	
Oct.	343,579	362,018		58,568	38,247		402,147	400,265	
Nov.	353,852	361,236		57,140	38,625		410,992	399,861	
Dec.	364,541	352,632		55,606	47,644		419,147	400,276	

(Rubber Manufacturers' Association figures raised to 100%)

* Revised.

STOCKS IN GREAT BRITAIN

Stocks in London

(No. of Tons in Wharves and Warehouses, including Latex)

At end of	1933	1934	1935	At end of	1933	1934	1935
Jan.	36,481	38,570	81,807	July	41,178	50,490	
Feb.	37,182	38,752	87,605	Aug.	39,480	48,953	
Mar.	40,689	40,501	92,664	Sept.	39,237	56,103	
Apr.	40,911	42,413		Oct.	37,101	63,079	
May	41,998	42,190		Nov.	36,139	67,656	
June	43,032	45,674		Dec.	35,615	72,285	

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1934					
Nov.	64,232	65,728	67,109	67,088	
Dec.	67,901	69,337	70,256	71,849	72,314
1935					
Jan.	73,407	75,821	78,138	79,530	
Feb.	82,160	83,622	85,202	87,222	
Mar.	88,097	89,388	91,153	91,298	92,602
Apr.	93,209	94,130	94,361	94,543	

Stocks in Liverpool

1934				
Nov.	58,380	59,616	60,281	60,543	
Dec.	60,164	60,125	62,243	62,573	62,617
1935				
Jan.	63,132	65,099	65,977	65,768	
Feb.	66,429	67,043	67,846	68,243	
Mar.	68,266	68,963	69,440	69,616	69,332
Apr.	70,151	70,057	70,886	70,729	

STOCKS IN PENANG AND SINGAPORE

(Stocks held by Dealers—Quantities in Long Tons)

End of	1932	1933	1934	1935	End of	1932	1933	1934	1935
Jan.	48,850	22,525	40,405	50,588	July	17,017	36,972	65,099	
Feb.	46,954	21,530	41,884	51,628	Aug.	20,649	38,601	59,227	
Mar.	46,591	24,594	47,933	46,046	Sep.	20,415	36,948	54,905	
Apr.	39,663	25,460	48,431		Oct.	23,158	37,282	54,155	
May	38,690	29,822	76,393		Nov.	25,419	39,018	49,282	
June	19,770	34,676	73,218		Dec.	25,341	38,269	51,255	

STOCKS IN OTHER CENTRES

End of: 1934	Malaya Mainland	Afloat for Europe	Holland	Colombo	Para and Manaos
Jan.	36,788	39,250	1,115	7,271	3,305
Feb.	39,630	36,563	906	5,366	3,420
Mar.	37,275	33,365	904	4,083	3,519
Apr.	33,765	32,640	905	4,070	3,624
May	7,213	39,370	897	3,066	3,556
June	20,243	36,870	902	3,533	3,273
July	27,235	35,430	1,263	4,683	3,094
August	30,507	36,060	1,322	5,713	2,849
Sept.	33,661	39,630	1,290	5,137	3,075
Oct.	31,762	40,560	1,401	5,675	3,113
Nov.	33,590	39,870	1,404	5,631	3,081
Dec.	23,173	41,200	1,326	5,732	3,293
Jan., 1935	33,609	35,600	1,397	5,926	3,477
Feb.	32,062	36,000	1,534	4,753	3,153
Mar.	31,844	36,000			

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total		Total		Total
1924	21,863,311	1928	24,247,282	1932	6,261,336
1925	26,001,664	1929	24,141,502	1933	8,713,962
1926	24,199,524	1930	17,364,096	1934	12,255,118
1927	19,700,003	1931	11,253,800	1935	

1933:		1934:		1934:	
January	1,868,723	May	1,140,132	September	526,472
February	1,616,398	June	1,015,730	October	629,878
March	1,724,077	July	1,155,024	November	577,713
April	1,907,032	August	752,074	December	1,199,240

U. S. Tire and Tube Statistics[1]

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1927	1928	1929	1930	1931	1932	1933	1934
Production	64,439	77,944	68,726	50,965	48,739	40,085	45,304	47,233
Shipments	64,059	74,296	69,395	53,638	48,151	40,260	44,094	46,687
Inventory[2]	10,264	13,624	11,838	9,003	7,775	7,644	8,888	9,455

Figures for Recent Months

	PRODUCTION 1933	1934	1935	SHIPMENTS 1933	1934	1935	INVENTORY 1933	1934	1935
Jan.	2,258	3,922	4,626	2,597	3,222	3,663	7,237	9,684	10,398
Feb.	2,339	4,335	4,383	2,292	3,285	3,287	7,377	10,725	11,530
Mar.	2,038	5,180		2,092	4,223		7,290	11,651	
Apr.	3,123	4,470		3,654	4,438		6,778	11,981	
May	5,189	4,456		5,180	5,332		6,760	11,127	
June	6,100	4,342		6,305	5,228		6,615	10,219	
July	5,714	3,353		5,497	4,157		6,844	9,437	
Aug.	4,994	3,533		4,707	4,308		7,070	8,697	
Sept.	3,999	2,936		3,503	3,183		7,595	8,419	
Oct.	3,249	3,287		2,537	3,010		8,462	8,657	
Nov.	3,039	3,341		2,197	3,191		9,247	8,779	
Dec.	3,082	3,778		3,531	3,109		8,888	9,455	

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1927	1928	1929	1930	1931	1932	1933	1934
Production	70,823	80,180	68,829	52,420	48,333	36,891	42,546	46,228
Shipments	72,896	77,127	70,592	54,938	50,021	37,911	41,391	45,046
Inventory[2]	13,692	16,117	12,807	9,999	7,922	6,749	7,815	9,180

Figures for Recent Months

	PRODUCTION 1933	1934	1935	SHIPMENTS 1933	1934	1935	INVENTORY 1933	1934	1935
Jan.	2,093	3,530	4,259	2,535	3,199	3,722	6,197	8,403	9,621
Feb.	2,224	4,077	4,171	2,102	3,323	3,362	6,357	8,445	10,466
Mar.	1,883	5,194		1,902	4,118		6,369	10,244	
Apr.	2,853	4,735		3,051	4,342		6,189	10,585	
May	5,189	4,359		5,180	4,902		6,760	10,043	
June	5,448	4,097		5,778	5,309		6,097	8,795	
July	5,603	3,531		5,211	4,323		6,440	8,053	
Aug.	4,916	3,680		4,687	4,198		6,628	7,555	
Sept.	3,827	3,110		3,472	3,024		7,008	7,639	
Oct.	3,506	3,219		2,676	2,689		7,831	8,151	
Nov.	2,863	3,169		2,103	2,767		8,625	8,503	
Dec.	2,631	3,503		3,410	2,850		7,815	9,180	

(1) Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% complete up until 1929 and 80% complete for 1929-1933. Beginning 1934, the Association reported its figures to be 97% complete.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	United States Total	Passenger Cars	Trucks	Canada Total	Passenger Cars	Trucks	Grand Total
1928	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929	5,358,420	4,587,400	771,020	263,295	207,498	55,797	5,621,715
1930	3,355,986	2,814,452	540,534	154,192	125,442	28,750	3,510,178
1931	2,389,730	1,973,090	416,640	82,621	63,477	19,144	2,472,351
1932	1,370,678	1,135,493	235,187	60,816	50,718	10,098	1,431,494
1933*	1,920,057	1,573,512	346,545	65,924	53,855	12,069	1,992,126
1934	2,778,739	2,190,099	588,640	116,890	92,538	24,352	2,895,629
1934							
Mar.*	331,263	274,738	56,525	14,180	12,272	1,908	345,443
Apr.*	354,745	289,031	65,714	18,363	15,451	2,912	373,108
May*	331,652	273,765	57,887	20,161	16,504	3,657	351,813
June*	308,065	261,852	46,213	13,905	10,810	3,095	321,970
July*	266,576	223,868	42,708	11,114	8,407	2,707	277,690
August*	234,810	183,500	51,310	9,904	7,325	2,579	244,714
Sept.*	168,871	123,909	44,962	5,579	4,211	1,368	174,450
Oct.*	132,491	84,503	47,988	3,780	2,125	1,655	136,271
Nov.*	78,465	45,556	32,909	1,697	1,052	645	80,162
Dec.	183,187	128,059	55,128	2,732	2,334	398	185,919
1935							
Jan.	292,765	229,199	63,566	10,607	8,269	2,338	303,372
Feb.	340,544	278,150	62,394	18,114	13,885	4,229	358,658
March	429,830	361,813	68,017	21,975	18,179	3,796	451,805

* Revised.

Exports of Crude Rubber from Principal Producing Countries

(*Long Tons*)

	BRITISH MALAYA [1]							DUTCH EAST INDIES [3]						
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon [2]	India & Burma [3]	Sarawak [4]	British North Borneo [3]	Siam [4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China [3]	Amazon Valley	All Other [4]	World Total [5]
1923	252,816	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,415
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	514,487
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,815	142,171	8,645	28,782	15,633	606,474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,813	58,848	82,511	121,770	9,548	21,129	10,690	653,794
1929	574,836	163,092	411,744	81,584	11,663	11,077	7,381	5,018	65,990	87,789	134,037	9,696	21,148	6,767	853,894
1930	547,043	133,876	413,167	76,970	10,782	10,309	6,781	4,251	69,755	79,396	115,254	7,665	14,260	5,651	814,241
1931	519,740	125,506	394,234	61,769	8,470	10,451	6,247	4,218	75,952	87,747	116,009	11,696	12,121	3,296	792,203
1932	478,252	92,539	385,713	48,973	3,888	6,960	4,664	3,451	61,312	79,837	85,871	13,883	6,450	1,616	702,818
1933	573,412	167,377	406,035	63,351	4,527	10,874	7,555	7,765	73,851	91,861	149,659	18,394	9,883	2,737	846,312
1933:															
March	42,153	7,964	34,189	4,905	389	571	458	304	5,092	6,466	6,999	1,102	995	103	61,573
April	36,823	7,758	29,065	4,582	272	624	583	235	5,226	5,969	8,147	1,122	556	183	56,564
May	42,917	13,664	29,253	4,643	475	1,091	583	359	6,782	7,298	13,195	1,371	918	143	66,111
June	41,482	16,538	24,944	5,198	377	1,149	582	632	7,352	6,654	14,779	1,369	704	124	63,864
July	50,531	18,772	31,759	4,201	270	1,358	728	797	7,367	8,580	16,534	1,310	913	166	73,983
Aug.	52,436	17,869	34,567	5,839	246	955	728	926	6,460	7,985	15,161	808	1,116	323	75,114
Sept.	49,607	15,146	34,461	5,111	125	1,027	727	611	5,868	9,164	15,005	1,702	656	274	74,731
Oct.	61,002	17,390	43,612	5,674	271	959	750	979	6,329	8,682	15,170	1,426	965	314	85,131
Nov.	54,599	20,142	34,457	6,097	516	1,020	750	1,303	6,684	9,951	14,474	1,553	956	366	78,127
Dec.	57,579	18,110	39,469	7,435	964	989	750	1,046	7,030	10,183	17,274	3,779	930	302	90,151
1934:															
Jan.	55,055	16,128	38,927	6,929	1,531	1,197	805	1,290	6,513	7,975	13,913	1,109	576	127	80,892
Feb.	57,867	15,027	42,840	8,620	775	1,005	805	1,264	6,706	9,211	13,696	1,232	831	105	87,090
March	58,515	19,907	38,608	6,750	1,412	1,360	806	1,363	8,655	10,539	19,084	1,968	846	113	91,504
April	56,748	20,957	35,791	5,157	762	1,447	894	1,311	7,282	9,808	19,250	1,330	440	236	83,708
May	69,403	25,691	43,712	8,870	1,106	1,892	1,397	997	12,104	14,606	26,598	1,243	726	328	113,579
June	53,282	20,981	32,301	5,397	1,425	1,886	644	1,497	4,860	6,192	15,956	1,593	765	377	72,893
July	53,335	22,829	30,506	3,818	710	1,662	1,048	2,399	5,762	7,369	14,415	1,703	353	252	69,997
Aug.	52,641	17,865	34,776	4,948	552	1,714	1,048	1,908	5,340	8,901	11,356	1,610	710	251	73,114
Sept.	61,051	17,889	43,162	6,555	294	1,438	839	1,626	5,722	10,738	14,688	1,665	764	222	87,713
Oct.	47,045	10,226	36,819	6,544	413	1,412	1,196	1,328	5,970	6,643	5,556	1,413	840	401	68,535
Nov.	51,140	8,759	42,381	6,756	501	953	941	1,356	7,621	7,123	5,338	2,356	1,017	334	76,676
Dec.	59,575	15,375	44,200	8,481	990	1,237	680	2,043	10,865	12,953	12,354	2,956	1,035	239	98,033
1935															
Jan.	56,720	17,142	39,578	5,202	2,269	1,630	1,222	2,614	3,812	5,371	8,704	2,650	1,106	200*	74,448
Feb.	50,593	17,676	32,917	5,551	820	1,887	760	2,288	4,395	7,663	15,194	2,076	636	200*	74,387
Mar.	47,407	13,437	33,970	2,604	658	1,901	773	2,076	5,592	7,950	7,973	1,472	1,000*	200*	66,169

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927, 1,437 in 1928, 2,670 in 1929, and 1,274 in 1930. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included—such shipments were equivalent to 18 tons in 1923, 93 tons in 1924, 6 tons in 1925, 20 tons in 1926, about ½ ton in 1927, and 1 ton in 1928, and practically none in 1929, 1930 and 1931. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons in 1924, 2,239 tons in 1925, 44 tons in 1926, 84 tons in 1927, 1,459 tons in 1928, 1,302 tons in 1929, and 2,656 tons in 1930. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands, and includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. * Figure is provisional; final figure will be shown when available.

NOTE: THE FIGURES FOR 1933 ARE REVISED AS OF JANUARY 25, 1935 AND REPRESENT FINAL FIGURES

Net Imports of Crude Rubber into Principal Manufacturing Countries

(*Long Tons*)

	United States [1]	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ce)	Australia (cd)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	238,407	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	343,808
1920	249,530	56,844	13,883	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	371,409
1921	179,736	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,620
1922	296,594	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,643	172	—3,807	1,778	589	567	396,222
1923	301,527	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	409,173
1924	319,103	—11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	—807	3,178	944	1,370	416,203
1925	385,596	4,061	32,956	33,937	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	520,274
1926	399,981	84,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	617,957
1927	403,472	60,249	34,271	38,392	26,405	20,521	11,381	12,018	9,490	6,482	636	4,224	2,055	2,672	632,768
1928	407,572	4,846	36.49b	37,855	30,447	25,621	12,433	15,134	8,430	7,958	2,243	4,418	3,178	3,138	599,771
1929	528,608	122,675	55,093	49,275	35,453	24,284	17,169	11,774	15,886	9,445	3,022	6,440	864	4,650	894,638
1930	458,036	120,069	68,503	45,488	28,793	33,039	18,639	16,387	5,354	10,635	2,924	7,710	2,400	4,468	822,445
1931	475,993	86,170	46,466	39,688	25,261	43,483	10,149	30,671	7,649	11,009	2,220	6,360	2,605	7,717	794,641
1932	393,844	44,086	42,506	45,121	20,917	56,027	14,469	30,637	12,576	9,519	2,851	7,262	4,359	9,444	693,618
1933	398,365	73,335	61,953	54,120	19,332	66,831	19,341	29,830	13,534	11,166	1,243	7,831	5,520	10,402	.....
1933:															
Sept.	43,886	4,341	4,111	5,841	2,620	5,369	2,055	2,168	794	864	189	604	790	577	74,211
Oct.	43,366	3,373	4,921	4,772	2,580	6,150	1,836	2,084	604	1,118	310	777	441	686	73,081
Nov.	39,633	3,955	5,419	4,086	2,184	6,296	942	4,483	301	1,129	222	878	493	882	70,903
Dec.	38,864	6,524	5,415	4,933	1,773	6,865	1,029	2,400	190	1,360	213	703	776	1,772	72,817
1934:															
Jan.	47,114	9,503	6,472	6,057	1,721	5,628	2,517	2,749	566	2,173	381	1,185	484	1,355	88,276
Feb.	33,087	10,785	5,301	5,490	1,854	4,570	2,388	3,399	950	1,538	287	464	656	516	73,357
Mar.	39,306	14,008	4,980	6,453	3,411	5,655	1,394	4,018	671	965	284	836	394	976	86,242
Apr.	42,262	9,999	3,210	6,701	2,419	5,679	1,966	1,326	415	504	262	1,217	752	465	77,177
May	47,412	9,786	3,634	6,499	2,218	6,905	2,218	4,360	769	214	322	940	142	1,768	87,192
June	46,785	16,564	3,803	6,171	2,208	6,745	1,887	3,145	1,512	837	331	843	1,146	1,624	93,601
July	40,308	12,266	4,051	5,494	2,430	5,739	708	1,640	732	810	540	1,602	747	1,094	78,161
Aug.	31,405	13,728	3,660	3,078	1,948	4,945	1,795	6,829	658	669	239	1,033	277	1,495	71,759
Sept.	30,345	11,254	4,244	2,607	2,770	7,346	1,486	4,487	743	501	339	980	465	477	68,044
Oct.	27,323	18,897	3,424	2,148	3,043	7,227	1,296	3,681	798	693	447	813	675	254	70,719
Nov.	35,982	15,875	3,176	3,625	1,568	5,580	1,764	4,488	516	379	187	1,382	542	215	75,079
Dec.	17,305	15,816	3,605	5,207	2,849	3,904	1,979	6,460	1,312	—168	139	1,143	615	762	60,928
1935															
Jan.	39,546	20,383	5,573	4,286	2,670	4,402	1,613	3,446	1,099	419	158	1,252	468	1,245	86,560
Feb.	45,999	15,609	4,593	5,490	1,558	5,582	4,356	....	848	399	477	838	.....	1,836	.....
Mar.	44,772	12,810													

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1] United States imports of guayule are included in this compilation. * Figure is provisional; final figure will be shown immediately it becomes available.

A Section Devoted to Listings of Leading Producers and Distributors of Raw Materials, Machinery and Equipment, and Supplies for the Rubber Industry.

The Market Place

Chemicals and Compounding Materials — Machinery and Equipment—Crude, Reclaimed and Scrap Rubber—Fabrics—Rubber Products — Consulting Engineers.

Chemicals and Compounding Materials —

ACCELERATORS—
Ureka C—Ureka Blend B—Ureka.—A-1, A-7, A-11, A-16, A-19, A-32, Z-88, A-510, DPG
ANTIOXIDANTS — Flectol A, Oxynone
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Godfrey L. Cabot, Inc.
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IN this section are listed the products of the leading producers of materials and equipment used by rubber manufacturers.

When buyers refer to these pages for their needs, your name and address and a description of your products should be available here. The cost of a one-inch listing is only $5.00 per issue—the lowest cost of advertising space available in the rubber field.

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460 West 34th St. New York

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CARBON BLACK
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